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MOTOR TRENDS

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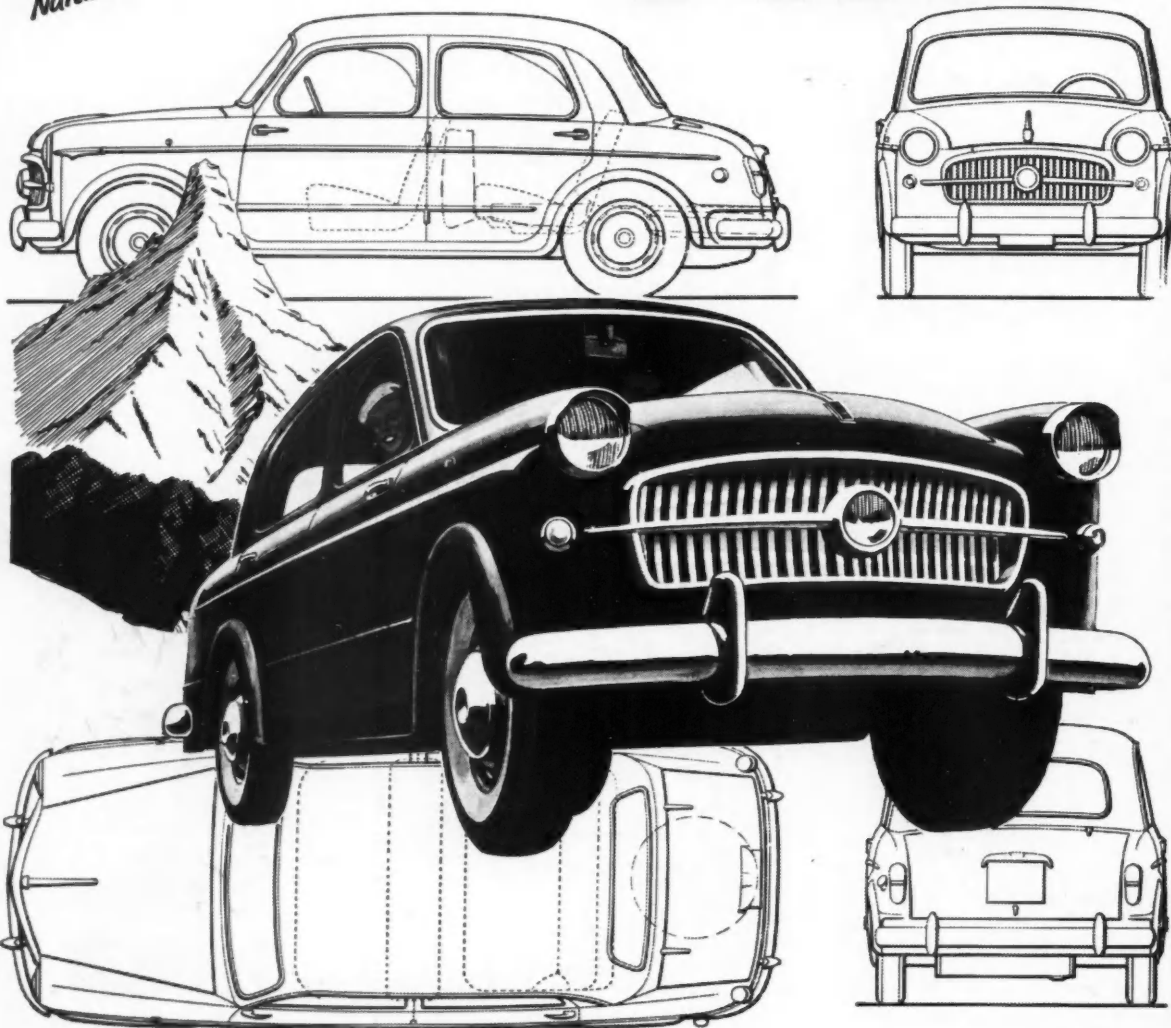
DECEMBER 1957 35c



**How and Why
the '58 CHEVROLET
was designed—told
by two Chevy Stylists
page 43**

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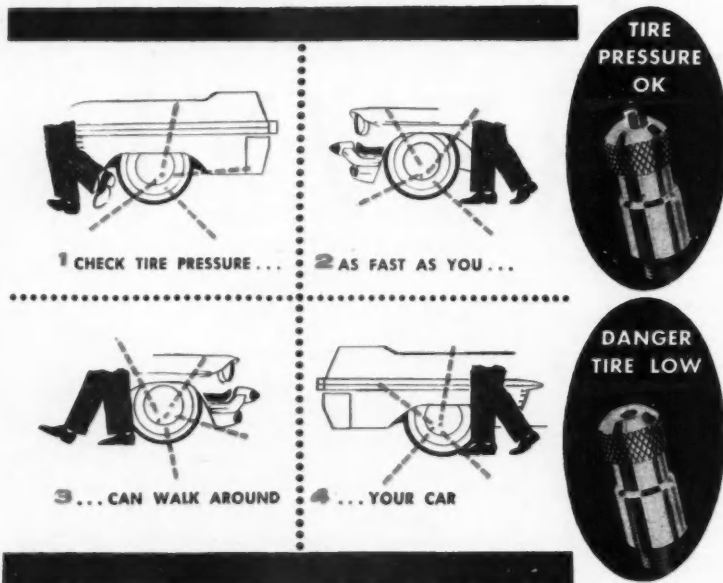
And that's a fact. You never saw so much sharp engineering, so many advanced ideas, such stunning changes packed into one year's progress. You'll spend hours studying this one and never run out of surprises. For '58, Chevy's new from the paint on in—and that means body, suspension, chassis, engines . . . the works! Sure, they're lovely to look at. But come on down and get the real eye-opener, the inside story! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

*Optional at extra cost.
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DECEMBER 1957

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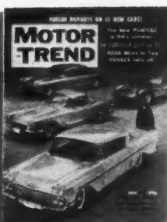


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NEXT MONTH

How the '58 Cars Compare
Chevy, Ford, Plymouth Tests
'58 Foreign Cars

MOTOR TREND



THE COVER:

The Chevrolet family parade (from left to right): Impala Sport Coupe, Corvette, Biscayne and the SS-Corvette. Standing behind '58 Impala is Harry Barr, Chief Engineer, Chevrolet.

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McCulloch Supercharger



➤➤ Tips

by
John Thompson

That Ol' Devil Smog's been in the news again. Apparently, Los Angeles no longer has a monopoly on the eye-smarting, throat-choking stuff. Many other cities in various parts of the country report substantial increases in air pollution despite the efforts of local authorities.

One of the smog culprits, according to the experts, is the diesel truck which has become a vital link in the nation's transportation network in recent years. And since just about everyone depends on the diesel for food and other necessities, you can be certain it's here to stay.

Perhaps that's one reason we're so pleased with the results of McCulloch supercharger diesel installations thus far. Fleet operators who have used McCullochs on their trucks report not only increased performance and better mileage, but virtually smoke-free operation as well. And with smog violation tickets costing what they do, it's easy to see why those who have installed McCulloch blowers on their diesel rigs wouldn't do without them. We'll have more to report on diesel installations in a future column.

A couple of "old pros" at the business of getting extra performance out of automobile engines are our newest McCulloch supercharger distributors. Known as Holman and Moody, the partnership headquarters in Charlotte, N. C., but covers both the Carolinas. John Holman most recently served as manager of the DePaolo Ford racing team, while Ralph Moody is one of the country's top stock car drivers, having piloted a McCulloch supercharged Ford at the 1957 Daytona Beach National Speed Week competition. As members of the Ford racing team, Holman and Moody were so tickled with the McCulloch supercharger, "we decided we wanted to handle 'em."

A reader from Baltimore, Md., wants to know if we will have a McCulloch supercharger for the 1958 Corvette. The answer is "yes" . . . the new variable ratio blower will be available for the '58 and will retro-fit earlier model Corvettes, too. Kits for '58 model Chevrolets will be available shortly at McCulloch dealers everywhere. Already on the market are the new VR blowers for Ford, T-Bird and Edsel.

Speaking of the Edsel, Beacon Edsel Sales of Inglewood, Calif., is using a McCulloch supercharged car as a demonstrator, much to the delight of prospective customers. According to agency owner, Clarence Pickrell, folks have really been flocking to the showroom for a test drive of this latest "dream car."

If you want to boost your car's performance by as much as 40% with no loss in engine smoothness or reliability, a McCulloch supercharger may be just the answer. For all the details, including price, the name and address of your nearest dealer and a free illustrated folder, just write to me, John Thompson, 929 Olympic Blvd., Santa Monica, Calif. I'll see that you get the information right away.



from the editor

BESIDES THE IMPORTANT ASPECT of gathering material for the dual cross-country road tests of the Edsels (page 62) on our junkets from Detroit to New York to Los Angeles, we saw many entertaining—and some serious—sidelights. We'd like to pass some of them on to you:

A sign in Alabama reading, "Construction ahead. Watch for loose materials, men and equipment" . . . The use of colored (red, green, blue, yellow) markers for different highway routes in the major towns of Mississippi . . . A sign on Route 190 in Louisiana, "12,000 friendly people and 1 or 2 old grouches welcome you to Jennings" . . . The courtesy of most drivers on Texas highways . . . The use of nicely landscaped, shaded, and clean roadside parks throughout Texas . . . The shock of seeing a New Mexico speed limit sign stating, "70 Mph Day, 60 Mph Night" . . . A sign in Arizona warning, "Road construction next 9.2 miles. 35 Mph speed limit enforced. Be prepared to stop." For the entire distance no construction taking place and cars warily edging above the 35 mph warning limit to the top limit of 60 mph. Question: Why not drape the sign when the road crew leaves? . . . Like jazz, modern? See and hear one of the greatest jazz pianists we've heard in years and one destined for greatness—Susan Fordham at the Hickory House in Manhattan . . . Like Spanish food, hot? Then don't miss the greatest we've ever tasted—at Leo's on Montana in El Paso, Texas.

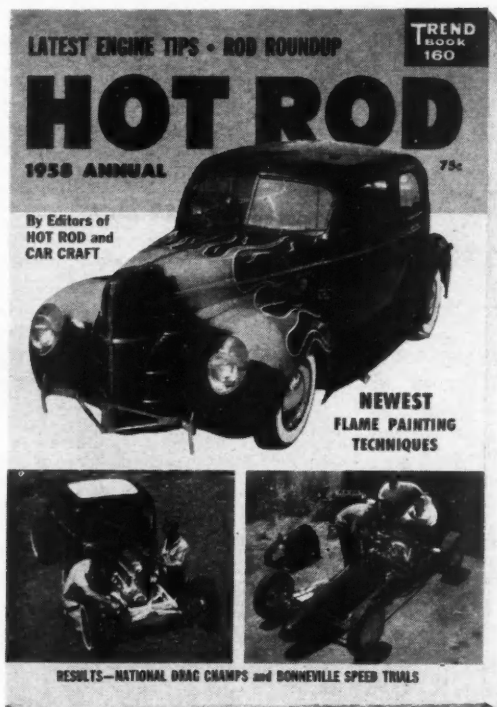
IN A MORE SERIOUS VEIN, we fail to see how highway construction can keep apace of car production. Traffic coast-to-coast and border-to-border is constantly on the increase, making driving for any distance hardly enjoyable any longer.

The majority of our *major* highways are so bad, so narrow, and so plugged with local traffic that even if you maintain a constant speed near the upper limits, you do well to achieve an average over-the-road speed of more than 40 mph. This takes into account the slow-ups you must make to take your turn in passing a slow-moving vehicle, and stops for fuel and meals. So, 10 hours of steady driving allows you to cover the relatively short distance (in terms of cross-country travel) of only 400 miles.

The only relief cross-country motorists will get from this will be from construction of more and more "through" roads. We'd be willing to pay another cent per gallon for gasoline if it meant accelerating the road program. How about you?

AN EVERLASTINGLY INTERESTING SUBJECT for discussion is, "What are the 10 best cars in the world?" Among the staff members of MOTOR TREND we have attempted to come up with a list of the 10 best cars of all time. Even among so few people we do not agree on all counts. We are therefore appealing to you, our readers, to assist us in this decision. What do YOU think are the 10 best cars of the world of all time?

John Thompson



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ADDRESS _____

CITY _____ STATE _____

[MARK, MODEL, YEAR OF CAR (S)] _____

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LETTERS

DID IT BULGE?

Dear Sirs:

A friend, his wife, and myself toured England in a TR-3. We found that an adult can ride behind the seats for long periods. In the trunk we had two tents, three sleeping bags and their wool inserts, a camp stove, a train case, side screens, top, and other camping articles. We spent six days and traveled 1100 miles with three people on board. Some of this was in fairly rough country but I still averaged 29 mpg.

Charles Cramer

Napoli, Italy

PRAISE BE

Gentlemen:

I would like you to know that I have a 1955 Chevrolet purchased in February '55. The car was delivered in excellent condition, has performed perfectly since and has been a pleasure to drive under all circumstances. I particularly like the clean lines and the simple egg-crate grille. My dealer has provided excellent services at all times. Every adjustment I have asked for has been competently and cheerfully performed.

Frank Ellis, M.D.

Long Beach, Calif.

TAIL FIN SEESAW

Gentlemen:

My car, "The Sifika," is designed to impress on the car builders of today the pleasing and graceful lines that can be obtained by bringing



back the slant-back models. Though common a few years back, they now seem to be a radical departure from today's styling.

Richard Hinze

Sheboygan, Wis.

CHANGE OF ADDRESS

Gentlemen:

Would you be kind enough to announce in MT that all correspondence regarding membership in the Lincoln Continental Owner's Club be sent to Dr. L. Dale Shaeffer, 1615 Carlton Blvd., Jackson, Mich. Dr. Shaeffer is the new temporary national chairman.

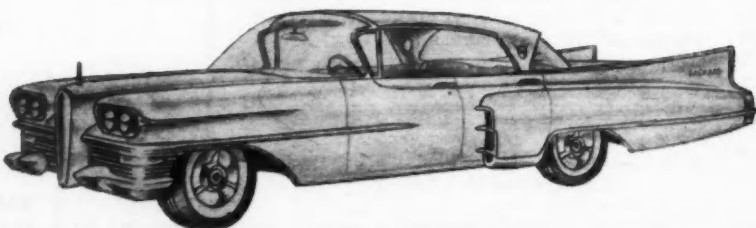
Patrick A. Philippi

Chicago

TURN BACK

Dear Sirs:

In comparing the sketches of the '58 cars (Sept. '57 MT) with the '37 Cord in the Sell 'N' Swap column of the same issue, I'd say the designers are going in the wrong direction. I'd put my money on a car like that



NEAR-FUTURE PACKARD

Gentlemen:

This is my idea for a near-future Packard

Cord over these present models any time.

Have you noticed the trade-in value of the Cord after 20 years?

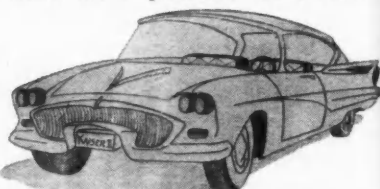
Pat Runyan

Erlanger, Ky.

SHADES OF KAISER

Dear Sirs:

This is what I think the Kaiser might have looked like if production had continued.



Several innovations have been added, including tail fins, dual headlights, bumper-grille arrangement, and some sculpturing.

Vaughn C. Louthen

Coronado, Calif.

DURABILITY-DEPRECIATION DILEMMA

Gentlemen:

I believe that durability is the most important consideration in buying a car. While the first owner of a car may not plan to keep the car long enough to consider repairs, a major cost to him is depreciation. Depreciation depends on what the second and third owners will pay for the car, and this depends on what repair costs they will expect to pay. This makes durability an important underlying factor.

Alan R. Fisher

Wilmette, Ill.

BRAKE BLOOPER

Gentlemen:

I hope that a recent experience of mine can serve as a warning to both car owners and garages. I had brake fluid added to my car on a trip and found that the fluid became practically non-operative at a much higher altitude.

Our brakes work beautifully at sea level, but we found that both drivers and garages should be more careful when adding heavy-duty fluid.

Don Beaver

Redondo Beach, Calif.

HAPPIER HEATING SYSTEMS

Gentlemen:

This idea will be helpful to car owners who have drained and refilled the cooling system in their cars and then found the heating system performing poorly. The cause is air trapped in the heater. Since there is no vent in the heater core, all that is necessary is to run the engine for a while with the radiator

design. It incorporates several characteristic Packard features with a fresh, modern look.

Kenneth E. Goode

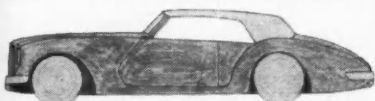
Valley Stream, N.Y.

cap off. As the coolant heats, the trapped air will escape.
R. Blagden
E. Hampton, Conn.

CLASSIC CONTINUATION

Gentlemen:

There are many people who still love the classic styling of the LaSalle, Packard, and



Lincoln Continental. They would definitely be interested in a car which would combine the flavor of these beauties of the past with the low, aerodynamic lines of a modern sports car.

This design would fit the '53-'58 Studebaker chassis without any modification.
David S. Madison
Denver, Colo.

MORE OR LESS?

Dear Sir:

In the June '57 MT you state that the merger between C-W, S-P and D-B would result in more favorable prices on the Mercedes cars.

I priced a 190-SL first from a Mercedes dealer and then from an S-P dealer. Within two weeks the price had gone up \$1000. Two interesting points: the S-P dealer is 80 miles closer to the port of entry and had no parts on hand; he also didn't have a mechanic who could work on the cars.

Pete Hasslacher
Glastonbury, Conn.

COMMENTS ON EDESL

Gentlemen:

Now that the new Edsel is here I would like to add a comment or two.

"Definitely a cut apart from the majority of cars..." I assume that the author excluded both Mercury and Ford. Any myopic person could tell that the front fender was stamped out on the same press that Ford fenders are made on. That grille (?) came right off a Mercedes, and as if that wasn't bad enough they stuck a gunsight ornament on top of it so you can aim for your next pedestrian.

It's new on the inside also, because there are pushbuttons, with which one hunts and pecks to get the car in gear. And the speedometer does the mambo when you change speeds.

Every car on the road is not the best... and this is not one of them.
Marshall Meyer
Melrose Park, Pa.

Dear Sirs:

Was just looking over my Feb. '57 issue of MOTOR TREND and was shocked to see the illustrations by Del Coates of the new Edsel. This article goes to show that your magazine gives its readers a further look into the future than other auto magazines.

John E. Woolever
Tulsa, Okla.

Dear Sir:

The report on the Edsel was thorough enough to solidify my previous opinion—I'm waiting to see Detroit do something better. If this is the best they can do in 1958, I'm keeping my '55 Dodge.
Paul B. Irvin

WHO SAYS IT'S RADICAL?

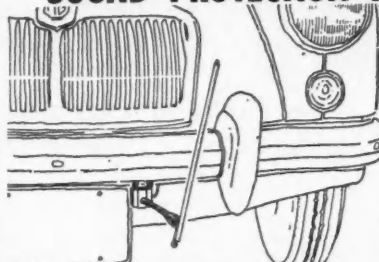
Dear Editors:

I think the Edsel is a trumped-up Ford. It looks like a Ford from the side. It may have a vertical grille and a rear end that looks like a '56-'57 Nash with a little panel truck thrown in, but it is not radical.

A Hudson is much more radical. Look at the body design. No one wants it, but every-

continued on next page

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For superlative engine performance

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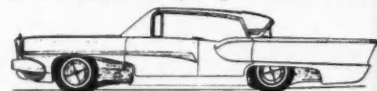
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LETTERS

continued

one wants an Edsel.

A radical car isn't a vertical grille, and two two-foot lights in the rear. You have to have a radical everything—different wheel



openings, different spinners, different roof, windshield, chrome, bumpers, headlights, seating arrangement, and other things.

I am 18 years old ... here is a drawing I made of a "so-so radical" Edsel.

Bob Burns

Lyndhurst, N.J.

THE DEBATE CONTINUES

Gentlemen:

Which to buy, a foreign car or a domestic car? My view is, buy one and you will wish you had bought the other.

A car to me is a carrier to get from Point A to Point B in a fairly comfortable and efficient manner. The people that want unusual beauty in a car should have it made by custom builders. Let the masses have a sturdy, dependable car—without wrap-around windshields, automatic transmissions, power-this, power-that, gaudy chrome doo-dads.

The time is ripe for another Henry Ford to bring forth a simple honest car, made for the people, and not for the dealers.

I noticed in the paper that you can buy '51 Cadillacs much cheaper than '51 Volkswagens. Honesty pays.

How can these potato-shaped foreign cars carry so many people, so far, for so little? At legal speeds, too!

D. B. Lanterman

El Monte, Calif.

SCOOTER-HAPPY

Dear Sir:

Like many of your readers I have wished for a car I could "drive" in contrast to Detroit's current output. A 300-SL or even a VW represented too large an investment and a garage problem. Then I read your article on scooters. Just for kids! On a lark I checked out five makes. My 200-plus-hp car now gathers dust while I zip around on my eight-hp Zundapp scooter.

The little four-speed box, with its tricky downshift, and the healthy purr of the 150cc engine as it cruises at 40 mph has put driving fun back into transportation. Then, too, 35 miles on a gallon used to sound good—now if I get less than 90 I start to tinker with the carburetor.

George R. Kaiser, Jr.

Sarasota, Fla.

SELL 'N' SWAP?

Dear Sir:

I was wondering if you could possibly put me in touch with a person about my own age (21) who would like to exchange mags, books and ideas regarding motor cars and motorcycles.

I myself have a Vincent 1000, which can do 120 mph on a short run.

L. S. Bateman

5 Keyham Lane West
Netherhall Est.
Leicester, England

Dear Sir:

I have a large number of British racing and rallying magazines which I would like to exchange for American ones, if any of your readers should be interested. If any of your racing or rallying enthusiasts requires any information on European racing, rallying or motor cars, I would be pleased to give them any information.

Arnold Burman

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Gosforth
Newcastle 3, England

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SPOTLIGHT

ON

DETROIT

YOU'VE PROBABLY HEARD the rumor—that GM *purposely* took a sales drop this year to throw the Washington trust-busters off their backs. The story pictures a smoke-filled conference room, the top GM brass sitting around a big table, plotting to "lose" a half-million or so '57 sales to Chrysler and Ford. Then the federal anti-trust people would supposedly close their files and forget that GM was a monopoly threat.

THIS BUNK has about as much substance to it as the perennial story about the 80-mpg carburetor. You just don't do things like this in a highly competitive industry like our new car game. The trust-busters aren't entirely convinced, but this *is* a competitive industry. A company has got to go all-out just to keep up—and it takes sheer genius to get ahead and stay there. GM's falling market penetration figures this year merely prove they have no monopoly on brains and inspiration. Everybody knows that inspired body styling was the big gun behind the Ford and Chrysler sales surge; it's equally obvious that conservative, evolutionary styling is what hurt GM (mostly through Buick and Olds).

ED RAGSDALE, Buick general manager,

put it very clearly in a recent statement (after conceding that the '57 Buicks were "unheralded and unsung"); "... In a highly competitive field such as ours, success in the marketplace must be earned, and it must be earned every day in the year. All of us are vulnerable when we are vying for public favor..." No, GM doesn't have to *plot* to lose sales; a few strokes of the stylists' pen can do it any time.

AND PERHAPS the most sobering lesson of all here is the highlight on the position of the independents. They've got a rough row to hoe—and it's getting rougher every year. Lagging sales is a disease that feeds on itself. As profits dwindle there is less and less money available to make the frequent styling changes necessary to keep abreast of the competition. There is less money to hire the kind of genius needed to design cars that will be *ahead* of the competition. And there is less money to *advertise*.

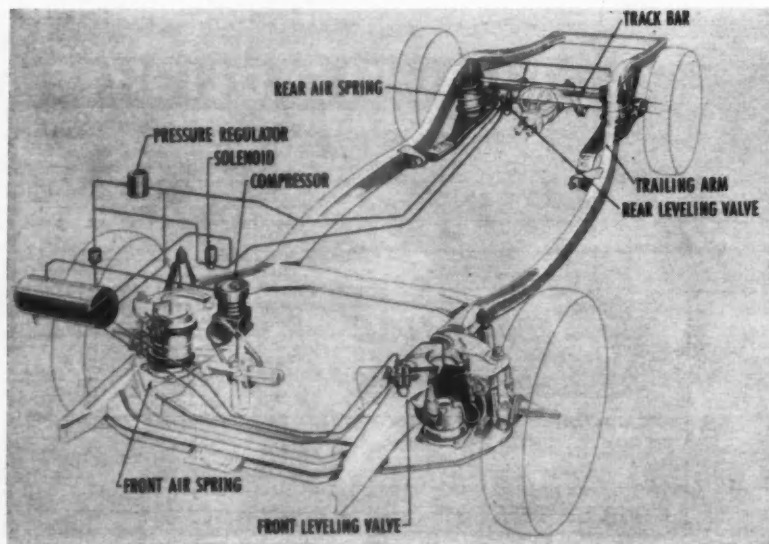
SO, ALL IN ALL, it's pretty ridiculous to suggest that *any* company, no matter how big, would deliberately sacrifice sales position in a cut-throat game like this... and certainly not for a reason such as the anti-trust investigation.

DO AMERICANS BUY small foreign cars for practical, economical transportation—or do they buy them for the distinction and snob appeal of an imported product? GM and Ford are apparently betting we buy them for practical transportation, because they have thoroughly "Americanized" the overseas models that they intend to import (the Vauxhall, Opel, and Ford Taunus). They've made miniature Buicks and Fords out of them. One day these cars were staid, conventional European family cars. The next they had sprouted huge wrap-around windshields and backlights, loud grillework, big bumpers, fancy chrome side trim, and typical American interiors with lots of gadgets.

SO THE QUESTION is whether this restyling in the modern American idiom, so to speak, will help or hinder the sales of a basically foreign product in this country. Remember that none of the overseas manufacturers have made any desperate attempt to style their products after our designs... (or if they have they've done a crude job of it). The fact that they've done so well on sales suggests that this is not necessary; in fact, many observers say the off-beat foreign look is their best selling point. What will happen when we try to sell miniature Buicks and Fords to the masses? Do we really want small cars, or just something different?

ONE THING seems pretty certain: this venture of the Big Three into the small car business will either be a huge success or huge flop.

FORD MOTOR has a neat idea in their water-heated intake manifolds on the new '58 engines. This is the way to do the job. Look for a trend here. Actually, there's no practical way we can get *away* from the manifold hot spot as long as we use a suction carburetor. The simplest and cheapest way to get the necessary heat is from the exhaust gases. But there are serious bugs. The flow of heat is uneven—too much heat under hard acceleration (when you need it the least), and sometimes not enough when cruising, when plenty of heat gives good gas mileage. The heating is not even at different points on the hot spot; some cylinders get overheated air and some run cool. An exhaust hot spot is relatively slow warming up after a cold start.



EDSEL AIR LEVEL RIDE air suspension is now available as an extra-cost option on all models. As in similar systems, leveling valves regulate flow of air to cylinders, hold car in level position regardless of loading arrangements.

AND THERE'S ONE DRAWBACK that's worse than all the rest combined: on a V8 engine with dual exhausts you have a special valve in the exhaust manifold on one side that closes and forces the gas through the cross-over passage, around the hot spot, and into the opposite manifold. This valve is supposed to be operated by a thermostat, so it will open when the engine is hot. But in order to build the thing for a few pennies it's rigged so it operates more on exhaust pressure than temperature. It's always wide open at full throttle, regardless of temperature—and it's always shut at low speeds below 30 mph, regardless of temperature. The trouble here is that the small flow of exhaust gas through one side of the dual system at low speeds does not give enough heat to keep the acids in the exhaust gas from condensing out and corroding the muffler and pipe. This has been a serious technical problem around Detroit since the introduction of dual exhausts on the '52 Cadillac. (That vapor you see coming out of one pipe on a cold morning means that *other* pipe is having a rough time!)

THE WAY TO CURE the problem, of course, is to divide the exhaust flow equally between both sides at all times . . . and the best way to do this is to heat the intake manifold with water. This will also give more even heating and quicker warm-up. Water-heated intake manifolds have been used with much success on U.S. and foreign cars in the past; looks like we're going to see them again.

SOME CLEVER DESIGN WORK by U.S. Rubber Co. engineers may upset the trend to smaller wheel diameters on U.S. cars. Their new "low-profile" tire on a 15-inch rim (standard equipment on the Cadillac Brougham) has the same overall diameter as a conventional 14-inch tire of equivalent load capacity. This allowed the Cadillac engineers to lower car height and still retain their highly developed 12-inch brakes, instead of having to develop 11-inch types like some of the makers who went to the smaller wheels. Some engineers feel that an 11-inch brake drum just isn't big enough for a car that weighs over 4500 pounds.

THE SECRET of the new U.S. tire is a very wide section in relation to its height. The average 14-inch tire has a section height more than 90 per cent of the width; the new low-profile design height is less than 85 per cent of the width. The new shape gives a low overall tire diameter—but retains good ride, stability, cornering and high-speed characteristics. This new development won't cause any swing back to 15-inch wheels . . . but it could keep us

from rushing to 13-inch rims before we have really efficient small-diameter brakes to handle the job.

THE USE OF ALUMINUM in American passenger cars continues to increase at a rapid rate. Reynolds Metals Co. officials predict that the average 1958 model will contain 47 to 49 pounds of aluminum, about five pounds more than the average '57 model. There are several reasons for the increased popularity of the light alloys . . . and light weight is *not* one of them! In all cases, aluminum—though it costs two or three times as much per pound as basic ferrous metals—is just plain cheaper.

TAKE THE CASE of replacing an iron sand



NEW PACKARD HARDTOP, shown here with Duncan McRae, chief stylist, features sculptured hood and egg-crate grille similar to Hawk's, but has dual lights.

casting with an aluminum die casting (like a transmission housing or power steering gearcase). In die casting, as you know, you inject the molten metal into a steel mold or die under high pressure. The process is very quick, cheap—and you can hold such close dimensions and smooth surfaces that very little machining is required on the finished casting. It's a far cry from the crude sand-mold casting method that must be used with high-melting-point iron alloys. In many applications the money saved on time, labor and machining by using an aluminum die casting in place of an iron sand casting more than offsets the high cost of the aluminum. This will be the big reason behind the coming switch to aluminum cylinder blocks, which you can look for in a couple of years. Weight has nothing to do with it. It's a simple matter of dollars and cents!

"WE CAN'T LOSE MONEY in 1958 and stay in the automotive field." So said American Motors president George Romney in a recent talk to his em-

ployees and their families. The flat-footed statement came as a bit of a shock to some observers. But why should it? No business in a free-enterprise economy can long survive that doesn't earn a profit for its backers. American Motors hasn't been in the black since the merger of Nash and Hudson in 1954. Rambler sales have always been pretty good; but losses on the full-size Nash and Hudson lines have eaten up any possible profits. (They have even absorbed the profits earned by the kitchen appliance and air conditioning divisions of AM.)

ROMNEY'S LAST-DITCH ATTEMPT to get going in '58 has some very interesting aspects, and it looks from here like

the most practical deal yet. What he's going to do, in effect, is to build the corporation's senior car models on the same assembly line—using the same parts—as used for the V8 Ramblers. If the senior cars shouldn't sell AM won't be out much because there will be very little separate tooling and space devoted to them. Last year the Nash-Hudson operation was entirely separate from Rambler—and it was a huge loss. For '58 the Nash and Hudson names are being dropped, and the senior line will be called the "Ambassador" (see page 25). Rambler dies will be used for the body, but the wheelbase will be stretched from 108 to 117 inches by lengthening the hood and front fender panels. Engine, transmission, and chassis components (rear axle, wheels, brakes, springs, etc.) will all be the same as used for the Rambler Rebel V8. (The six-cylinder Ramblers are built on another line, and use many different components.)

GOOD LUCK to American Motors in their coming profit battle! /MT

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A NEW NICKEL-CADMIUM BATTERY
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You can convert your old style battery to a European-type Cadmium Battery by adding the revolutionary new CADMIUM BATTERY BOOSTER containing Activated Cadmium. Prevent battery-killing sulphation, pep up your old battery, add years to its life!

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THE Rumor MILL

"Chrysler Corp. will go to all-new bodies and chassis for the 1959 models." FALSE—Detroit has gradually whittled body die runs from four or five years down to three; but it has not been found generally practical yet to amortize the expensive tooling over two years' production. (Chrysler did it in '55 and '56 by using one basic set of dies for all lines.) Anyway, present Chrysler plans call for a three-year run on the '57 dies—so we can look for the next complete change in '60. Corporation officials confirm this.

"Chrysler will buy into one of the European auto manufacturing companies and import a small car to compete with the GM and Ford projects." LIKELY—President Colbert said recently that a decision on Chrysler's small-car plans would be reached soon—but that no action would be taken until merchandising of the corporation's '58 models was well under way. He said most of the European small-car firms were "for sale," and that there were good possibilities.

"A fuel injection system costing less than \$100 will be offered by one manufacturer later in the '58 model run." FALSE—Injection systems have been developed in the laboratory that could conceivably be built for \$100 in volume production; but there is just not enough hard demand yet to push the deal into production. Fuel injection is definitely still in the "gimmick" class—and the manufacturers are not knocking themselves out to cut costs. As demand increases prices will drop.

"The rumored 100-inch-wheelbase Rambler will be a shortened version of the present six-cylinder model, using the same basic body shell and chassis components."

FALSE—The "junior" Rambler coming up will be based on the old 1955 body shell and chassis components. The engine will consist of the present six short block, but with the '55 flat cylinder head. (Actually, the current overhead-valve six is only a new rocker-arm cylinder head on the old Nash Statesman block, first produced in 1940!)

"Some 1958 models will not get their rumored air suspension systems until later in the model year, maybe as late as next spring."

TRUE—The closer it got to introduction date the more bugs and problems that seemed to pop up on the various air suspension systems. (Don't forget that air suspension was strictly a rush job to meet the challenge of Chrysler's torsion bars.) In some cases it was not possible to put a reasonably reliable setup in the showrooms by the October announcement dates. There was no choice but to hold off. But air suspension is definitely on its way.

"Chrysler is experimenting seriously with supercharging for possible early use on trucks and passenger cars."

TRUE—It's hard to say how "serious" they are, but there is definitely a considerable amount of experimental work going on right now at Chrysler with various types of superchargers, both on the dyno and test track. Some of the commercial turbo-superchargers, used on diesel trucks, are getting a lot of attention. (These utilize the engine exhaust gases to drive the blower through a turbine.) Some fantastic results have been achieved when applied to gasoline engines. Keep an eye on this one.

"Chevrolet will enter a team of cars in the coming Daytona Beach Speed Weeks in defiance of the AMA anti-race ruling."

FALSE—There will be no open factory participation in any form of stock car racing next year. A lot of men in Detroit would like to defy the AMA edict and get the factories back in the swing, at least in a smaller way; but the powers that be say "no"—emphatically. However, under-the-table factory help for certain established competitors is entirely possible.

"The Goodyear 'Captive Air' tire will be made standard equipment on all senior Chryslers and DeSotos later in the '58 model run (eliminating the spare)."

FALSE—The price of four of these special tires is still well above five conventional tires—which means they will have to remain on the optional list for now.

Coming
next
month!

OUT WITH THE OLD, IN WITH THE NEW!

January
MOTOR TREND
On Sale Dec. 19th!

MOTOR TREND's New Year's resolution for 1958 is to bring you even more big news about the newest in cars. As proof, take a look at what you get in the January issue:

FIRST DRIVING TESTS! CHEVY, FORD, PLYMOUTH

Here's your chance to see how the Big Three stack up against each other on the road.

HOW DO THE '58S COMPARE?

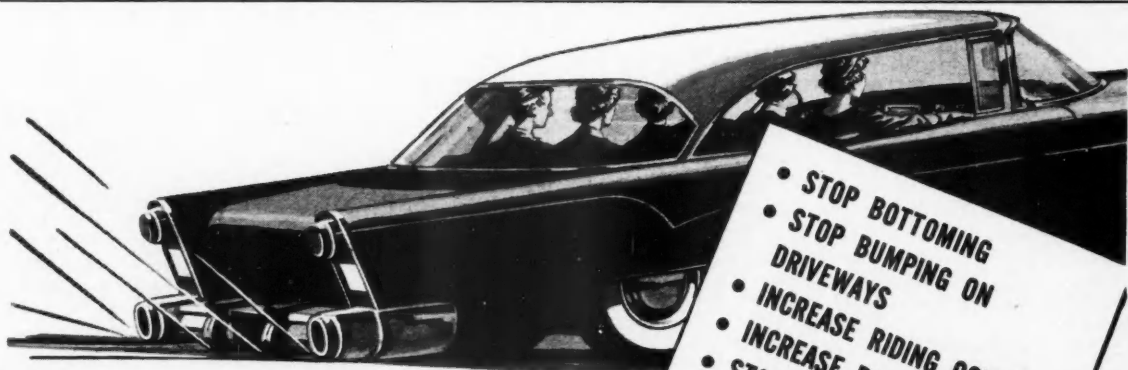
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Special Report on the '58 Foreign Models—covers the cars at Frankfurt, Paris, London, Turin.

COMPLETE DRIVESCRIP- TIONS: RAMBLER, CADILLAC

The Big One and the Small One—learn why they're both great for '58!



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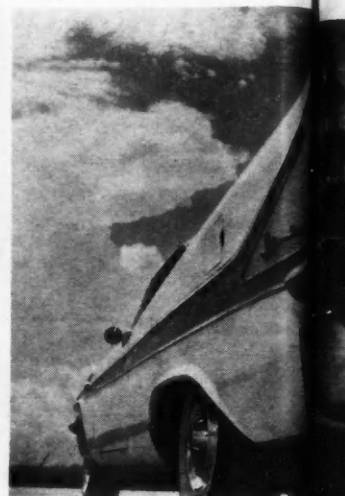
'58 Plymouth



'58 Dodge



'58 DeSoto



Chrysler: what's new

With such a drastic styling change last year, they're staking their appeal this year on changes more than skin deep.

THE OUTLOOK on automobile sales for 1958 looks good. Manufacturers expect a six-million-car year. Why? Incomes are at an all-time high, close to \$350 billion a year, and continuing to increase. In the car industry itself, all manufacturers have reached a point in their restyling cycle where they can offer something either entirely new or still fresh from 1957. The majority of people who purchased cars back in the record sales year of 1955 contracted for long-term credit and will be in a position to be back in the market in 1958.

Chrysler Corp. expects to see 1,500,000 of these buyers in their showrooms. That's 25 per cent of the total cars expected to be built in the United States in 1958, and an increase of approximately 300,000 over their past year's production. Helping to sell these cars will be the corporation's automotive group marketing organization, formed at the introduction of the 1957 models to assist dealers with financial and personnel management, facilities, merchandising and sales promotions. Of moderate success in its first year, it should improve during 1958. However, what their dealers have to offer in automobiles will be a more deciding factor.

The public, in the past few years, seems to be more educated in car buying, brought on mainly by the highly competitive, slam-bang type of advertising thrown at them by the factories. They know what they want, regardless of promotions and gimmicks which do not change the appearance or styling of an automobile. This is Chrysler Corp.'s gamble for 1958.



▲ '57 DeSoto

'58 DeSoto ▶

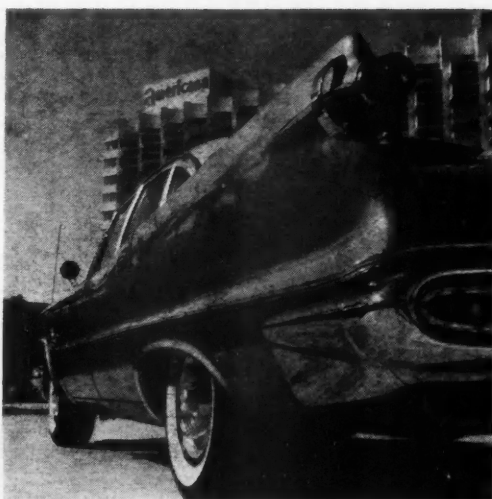
"Designed Three Years Ahead" may have been a good pitch in 1957, but the car buyer is looking for something new in next year's models, even if it's only a major facelift, and the already familiar wedge, or dart-shaped silhouette of the "forward look" introduced to the public in 1957 is *not new* for 1958. Minor changes in side trim, grilles, bumpers and tail lights will be hard to distinguish from 1957 models.

Thinking that this minor facelifting of the 1957 models will carry them through 1958 style-wise, Chrysler Corp. has concentrated on mechanical changes. These changes are not "tacked-on" special devices in the gimmick category, but are major advances in automotive engineering and should have enough appeal to the car buyer to offset the lack of new styling. /MT

'58 Chrysler

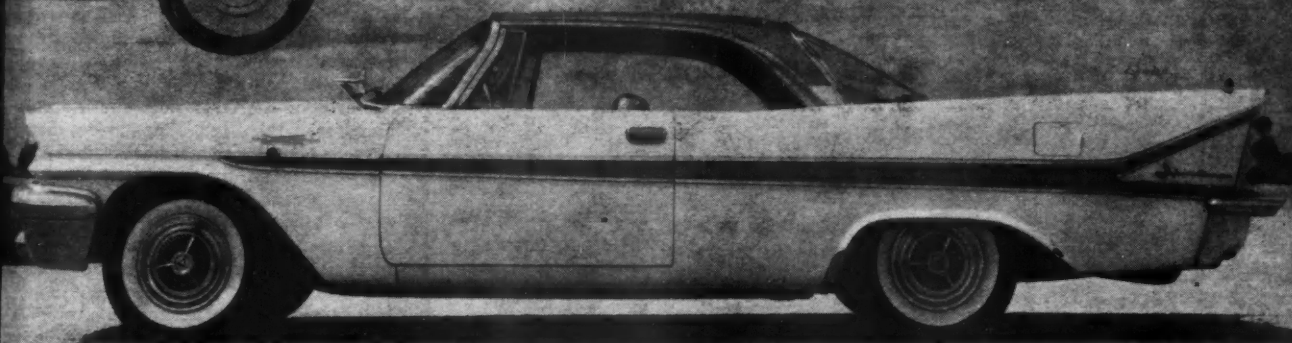


'58 Imperial



PHOTOS BY ROBERT D'OLIVO

W for '58?



Improved full-time power steering

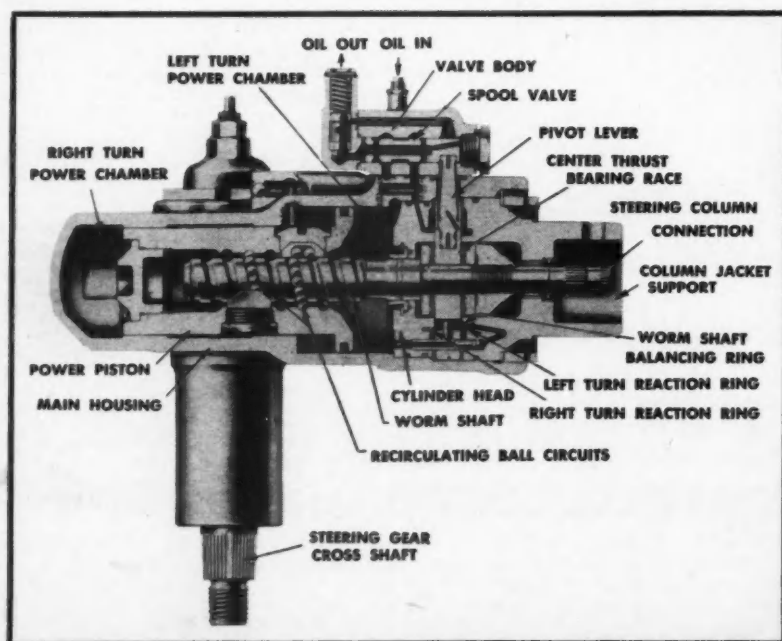


first
feel
behind
the
wheel

AMONG THE MANY power assisted accessories available to the car buyer today, power steering is the most wanted. With increases in weight, wheelbase, overall length, and the use of super low pressure balloon tires, it is almost a necessity.

Chrysler Corporation, in 1950, was first to introduce power steering on passenger cars. The whole industry followed, but with varied types. Full-time coaxial power steering appeared on Chrysler cars in 1955. The all-new "Constant-Control" for 1958 is similar in operation, but simpler and more compact in design.

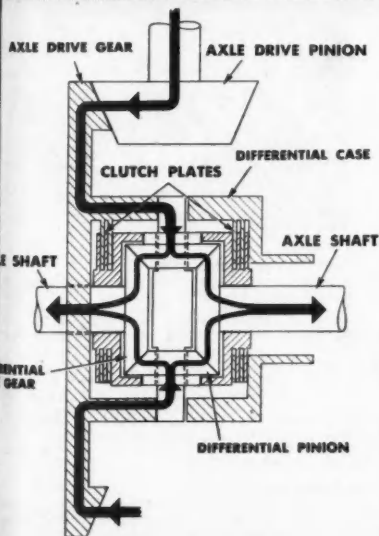
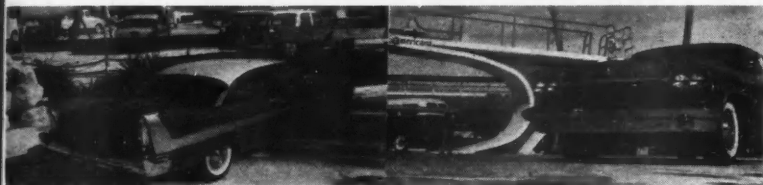
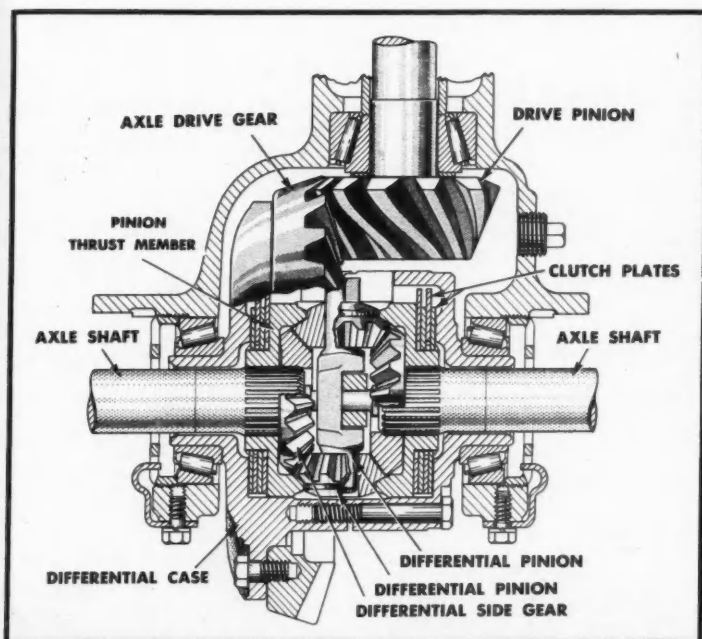
Driving a 1958 DeSoto Adventurer with "Constant-Control" was almost effortless as far as steering was concerned; it was simply a matter of turning the wheel. It still retains the full-time feature, but has a more stable, or solid feel of the road, especially on straightaway highway driving. It is not as quick or sensitive as previous units, partially eliminating the tendency to oversteer on fast sweeping turns. Deflecting of the front wheels by irregular road surfaces is barely felt and does not affect the steering noticeably. Turning the front wheels from full left to full right takes $3\frac{1}{2}$ turns, the same as 1957 models.



HOW IT WORKS: Unlike some other power steering units, "Constant-Control" is located along the axis of the steering column. The steering column actually extends into the unit. The end of the shaft is geared to the power piston by two recirculating ball circuits. The piston is geared to a cross shaft, with the steering arm also being attached to this shaft. When you turn the steering wheel, you actuate a pilot lever and spool valve. This increases the flow of oil to one side of the piston (and decreases it on the other side) causing the piston to move. The piston motion then transfers to the cross shaft, which through the steering arm, turns the front wheels. Manual steering control is immediately available should the power system fail.

A new slipper-type constant displacement oil pump is used in conjunction with "Constant-Control" power steering. A flow control valve allows recirculation of oil from the rotor outlet to the rotor inlet, greatly reducing engine horsepower needed to operate the pump. Since the broad, slipper-type vanes are spring loaded, they give increased sealing area between the vanes and inner diameter of the pump, and make it more efficient. The entire pump is contained in the oil reservoir. /MT

Limited-slip differential with more positive traction



**POWER FLOW
AXLE SHAFTS TURNING
AT SAME SPEED**

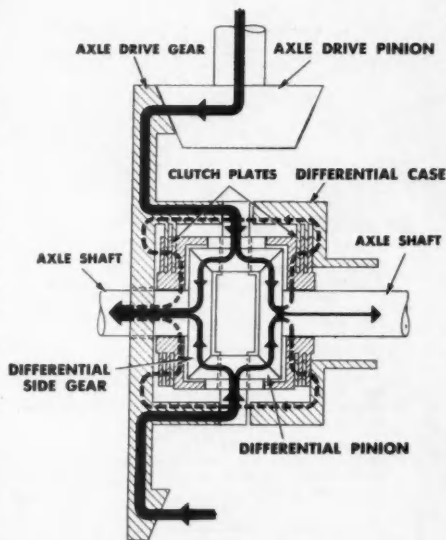
HOW IT WORKS: When the rear wheels become stuck, a limited-slip differential will add extra power to the rear wheel that offers more resistance, which will be the wheel with the better traction. With a conventional differential, planetary pinion gears supply equal torque to both axle shafts. When one rear wheel is stuck in snow, ice or mud, power to that wheel is great enough to start it spinning. This spinning wheel will have less force against the ground and the other wheel, receiving the same amount of torque, will also have less force against the ground. The combined force of both wheels is seldom enough to overcome the resistance of the car to move. "Sure-Grip" solves this problem by transferring the wasted power of the spinning wheel to the wheel which has the better traction. This is done with friction, or clutch, plates which connect the axle shafts to the differential case. These clutch plates are engaged by the action of the differential pinion shafts.

"Sure-Grip" is available as extra-cost equipment on all Chrysler products with V8 engines. /MT

DRIVING A 1958 Plymouth Fury equipped with Chrysler Corp.'s new limited-slip differential, called "Sure-Grip," was no different under normal conditions from driving a car with a conventional differential. The car was tested on an airport course, and one rear wheel was driven off the runway and into soft sand. Getting the car back on the pavement was no trouble with "Sure-Grip." Pressure on the foot throttle, with the gear selector in drive, eased the Fury out of the sand. This was repeated several times, alternating rear wheels, with the same results. This should prove invaluable to motorists who encounter much snow, ice, or mud driving conditions.

The Fury was next driven in a series of 70-mile-per-hour, 90-degree sharp sweeping turns, using full throttle the last two thirds of the turn. Both rear wheels were breaking loose, but enough power was supplied to each to keep the car pointed in the right direction. We would not recommend this testing procedure, though it does serve to point up the excellent handling of the Fury.

Several standing start acceleration runs were made and the advantage of the limited-slip differential here was evidenced by the two long black strips of rubber left behind on the runway. Try this at the drag strips though, not on the street.

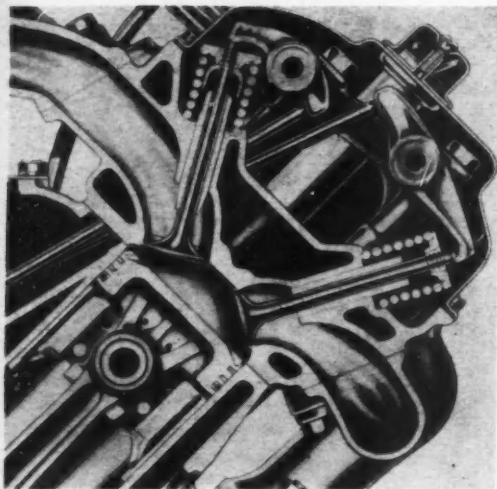


**POWER FLOW
AXLE SHAFTS TURNING
AT DIFFERENT SPEEDS**

Lighter, more compact V8 engine

HEMISPHERICAL HEAD

The hemisphere combustion chamber has been used for years in high performing aircraft and racing engines. Knowing that the hemisphere was the ideal shape for high power output, Chrysler engineers decided to build an engine around it. It first appeared in their automobiles in 1951 with 180 horsepower, then the most powerful passenger car in the U.S. Using good valve location and size, valve timing, layout and diameter of intake and exhaust ports, this engine had excellent volumetric efficiency, or breathing ability. Lateral arrangement of the valves and near-center location of the spark plug was truly an ideal layout. To accomplish these features, however, involved complex mechanical problems, resulting in a heavy, large, expensive-to-build engine.



DODGE: "Red-Ram V8"

Standard on Coronet Eight with 2-bbl carburetor and 8.5:1 compression ratio. Standard on Royal with 4-bbl carburetor and 9.0:1 compression ratio. Bore 3.69, stroke 3.80, displacement 325 cubic inches.

CHRYSLER: "Firepower V8"

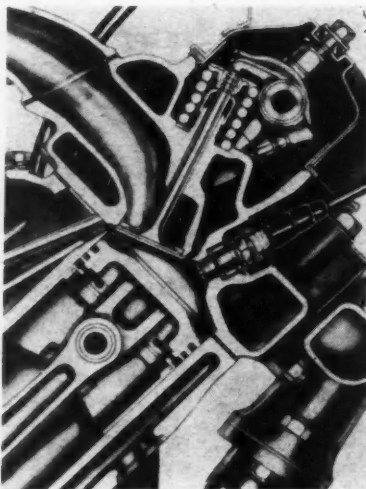
Standard on New Yorker with 4-bbl carburetor and dual exhaust. Standard on 300-D with 2 4-bbl carburetors, dual exhaust, special cam and valve gear. Bore 4.0, stroke 3.9, displacement 392 cubic inches, 10.0:1 compression ratio.

IMPERIAL: "Imperial V8"

Bore 4.0, stroke 3.9, displacement 392 cubic inches, 10.0:1 compression ratio. Standard with 4-bbl carburetor and dual exhaust.

POLYSPHERICAL HEAD

The year 1955 saw overhead valve V8 engines in each of the Big Three's low-priced line. Chrysler Corp.'s entry into this field was a new engine with a polyspherical-shaped combustion chamber. It was more compact and lighter in weight, yet retained many advantages of the already successful Firepower engine with the hemispherical shaped chamber. The major difference in the two engines is in the valve drive mechanism. A single rocker shaft is used with the polysphere instead of the double rocker shaft assembly used with the hemisphere. This involved relocating the valves, but still allowed the lateral layout and centrally located spark plug. The exhaust valve has been repositioned, and is seated in a polygonal section across the basic spherical surface of the chamber.



PLYMOUTH: "Fury V-800"

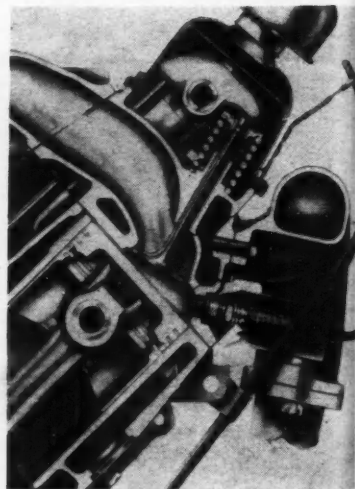
Available on Plaza, Savoy, and Belvedere series. Bore 3.91, stroke 3.31, displacement 318 cubic inches, 9.0:1 compression ratio, standard with 2-bbl carburetor, optional 4-bbl, dual exhaust, and special cam. Available only on the Fury with 2 4-bbl carb., double breaker distributor, dual exhaust, special cam (different from V-800 cam) as standard equipment.

CHRYSLER: "Splitfire V8"

Standard on Windsor with 2-bbl carburetor and Saratoga with 4-bbl carburetor and dual exhaust. Bore 3.94, stroke 3.63, displacement 354 cubic inches, 10.0:1 compression ratio.

WEDGE-SHAPE HEAD

The polysphere chamber was somewhat a disappointment. Performance was not as fair, and the cost of manufacture was too high. Chrysler's third entirely new V8 was then designed. The combustion chamber, well, it's now tapered, or wedge-shaped. Compression ratios are easier to increase with a chamber of this design. Valves are in-line with a single rocker arm shaft and spark plug location is now off to one side of the chamber. Light, one-piece stamped-out rockers, combination valve gear cover and intake manifold gasket, and improved block layout have helped reduce cost of manufacturing this engine. Increased distance between cylinder centers will allow for big boring on future versions. Two sizes, 350 and 361 cubic inches, will be available for 1958.



PLYMOUTH: "Golden Commando"

Available (optional) on all models as a special package including heavy duty springs and shocks, dual exhaust, high capacity cooling, etc. Standard with 2 4-bbl carburetor, FI optional on Fury. Bore 4.06, stroke 3.38, displacement 350 cubic inches, 10.0:1 compression ratio.

DODGE: "Ram-Fire V8"

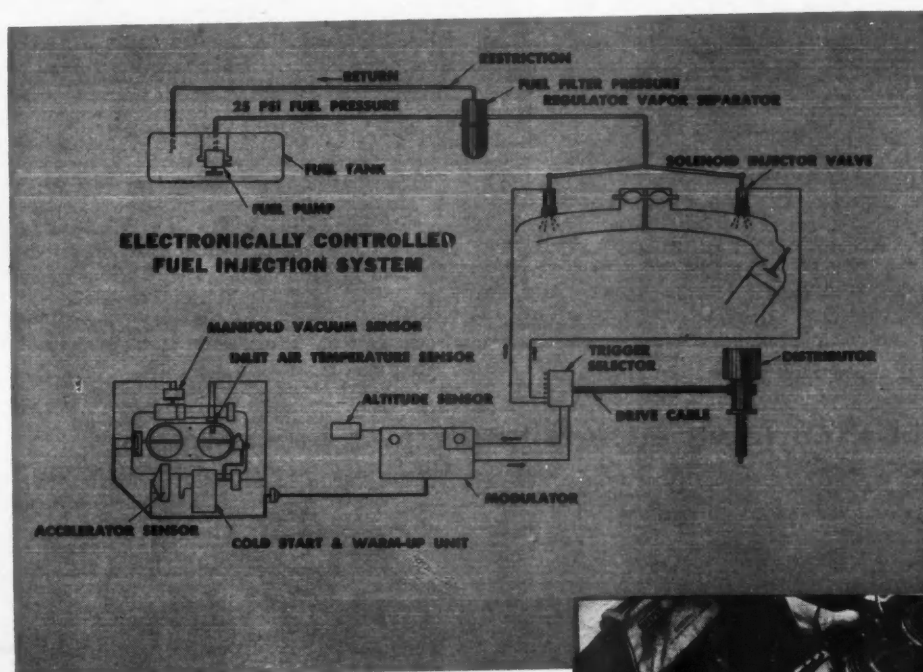
Available (optional) on all models. Standard on Custom Royals, station wagons (bore 4.06, stroke 3.38, displacement 350 cubic inches, 10.0:1 compression ratio, standard with 4-bbl carb., optional 2 4-bbl) and D-500's (bore 4.12, stroke 3.38, displacement 361 cubic inches, 10.0:1 compression ratio, standard with 4-bbl carb., optional 2 4-bbl and FI).

DE SOTO: "TurboFlash V8"

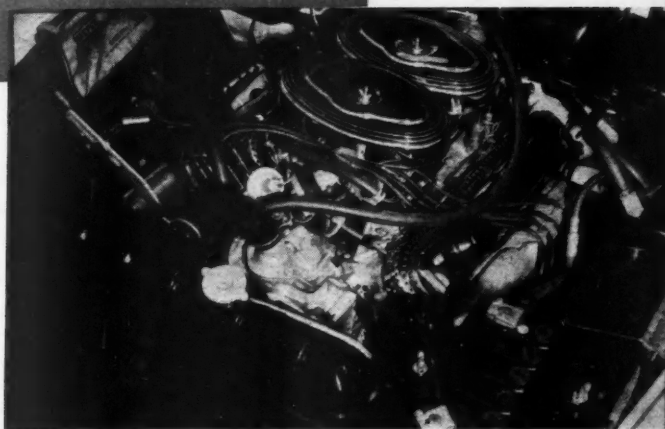
All models. Firesweep: bore 4.06, stroke 3.38, displacement 350 cubic inches, 10.0:1 compression ratio, standard with 2-bbl carb., optional 4-bbl. Fireblade: bore 4.12, stroke 3.38, displacement 361 cubic inches, 10.0:1 compression ratio, standard with 2-bbl carb. Fireblade: bore 4.12, stroke 3.38, displacement 361 cubic inches, 10.0:1 compression ratio, standard with 4-bbl. Adventure: bore 4.12, stroke 3.38, displacement 361 cubic inches, 10.25:1 compression ratio, special cam and valve gear. Standard with 2 4-bbl carb., optional FI.

◆ The three basic types of '58 Chrysler engines—with hemispherical, polyspherical, or wedge-shaped combustion chambers—are available, under their respective engine names, on the above-listed cars.

Electronic fuel injection



ADAPTED from the Bendix "Electrojector," Chrysler's new electronic fuel injection uses an electric pulse to open injector valves. System is shown at right installed on a DeSoto Adventurer. Solenoid-operated injector valves can be seen below air cleaner.



AT THE PRESS PREVIEW in Miami Beach, Fla. we had the opportunity to try out Chrysler's new fuel injection—optional on the '58 super-stocks (Plymouth Fury, Dodge D-500, DeSoto Adventurer and Chrysler 300-D). First we drove a Fury with two four-barrel carburetors, then an identical Fury with fuel injection. Lacking the facilities of a test strip and accurate instrumentation, we compared the two by a "seat of the pants" method.

Each of the cars started quickly, had apparently similar acceleration from a standing start, but the fuel-injected Fury seemed to have the greater middle speed response. Incongruously, the FI Fury stumbled and missed when it was slowed down to 20 mph and then quickly floorboarded. Performance was good throughout the entire range with the carbureted Fury, even in sharp, high-speed turns. Idle was satisfactory on both cars.

HOW IT WORKS: The fuel injection system used by Chrysler is an electronic type, adapted from the Bendix "Electrojector." An

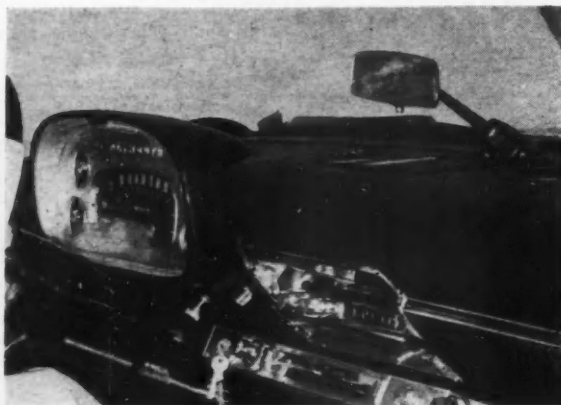
electric fuel pump located in the fuel tank and submerged in the gasoline supplies fuel at 25-33 psi to a combination filter, pressure regulator and vapor separator. The gasoline is then delivered at 12.5 psi directly to the injector nozzles by a manifold system of "runner" and "feeder" tubes. Each injector nozzle is actually a valve, opened and closed by a solenoid coil and return spring. The action of this solenoid valve is controlled by the trigger selector, driven off the distributor shaft by a cable, and works very much like the ignition distributor itself. The modulator, located in front of the radiator, is the "brain" of the whole system. It allows for existing engine operating and atmospheric conditions and calibrates, in the form of an electronic pulse, the duration each injector valve should remain open. This pulse is returned to the trigger selector where it is distributed to each of the injector valves. A sensor system is used to compensate for idle, acceleration, cold start and warm-up, manifold vacuum and variations in temperature and altitude.

WHAT'S NEW ON CHRYSLER CARS? continued

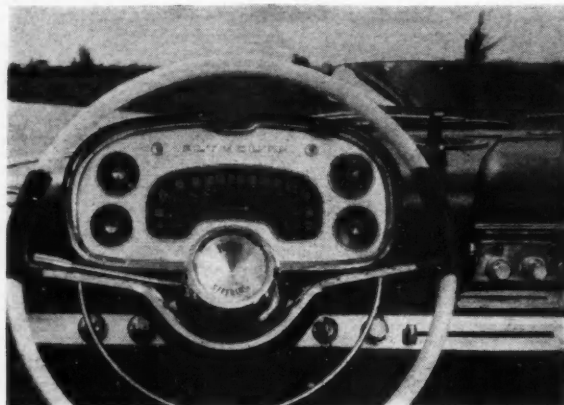
SEVERAL MINOR ENGINEERING, mechanical, and styling changes have been made by Chrysler Corp. for their 1958 models. Dual headlights will be standard on all makes and models. The new lights have increased wattage, with the inner lamp designed exclusively for high beam, and the outer lamp for low beam. Compared to a single headlight unit, the new lighting pattern extends 75 feet farther down the highway. . . . All six-passenger station wagons will be available with a locking 7.5-cubic-foot storage compartment. It is located under the floor in the rear where the spare tire normally sets. The spare has been placed in the right rear fender panel, as in the nine-passenger wagons. . . . Ride quality has been improved by increasing the rear springs two inches in length, inserting new liners and changing the shackles. . . . Carburetor redesign and a new "Econo-Choke" system should improve fuel economy during warm-up periods and short-run trips. . . . Driver visibility to the rear has been increased 38 per cent by relocating the inside rear

view mirror closer to the driver and to the left of center. . . . The compound curved wrap-around windshield used on all 1957 convertibles and Imperials will again be standard on these models plus all Dodge, De Soto and Chrysler hardtops. . . . Chryslers and Imperials will share as optional equipment an automatic throttle control called "Auto-Pilot." With this unit the throttle may be operated in a conventional manner, semi-automatic, or automatic. A predetermined speed is set on the dash-mounted selector. When this speed is reached, pressure will be felt on the accelerator pedal. If passing speed is necessary, increased foot pressure will override this back pressure. For automatic operation, a button, recessed in the speed selector, is pushed when the pre-selected speed is attained. Auto-Pilot then takes over completely, allowing the driver to remove his foot from the accelerator pedal. Touching the brakes or extra pressure on the foot throttle will disengage the Auto-Pilot. It takes over again when the car reaches the same pre-set speed. /MT

RELOCATED REAR VIEW MIRROR



'57 . . . Rear view mirror location was poor.



'58 . . . Closer to driver and instruments



'58 Plymouth

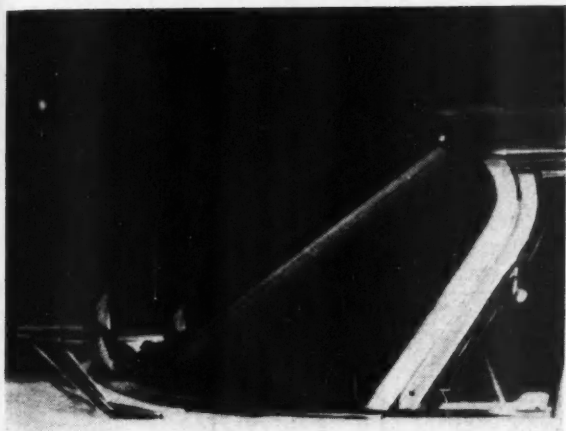


'58 Dodge



'58 De Soto

LARGER WRAP-AROUND WINDSHIELDS

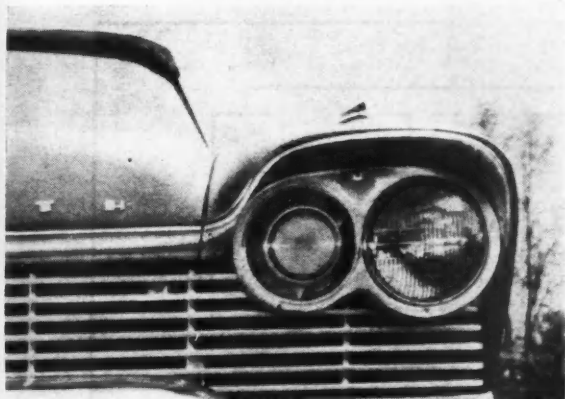


'57 . . . Wrap-around will still be used.

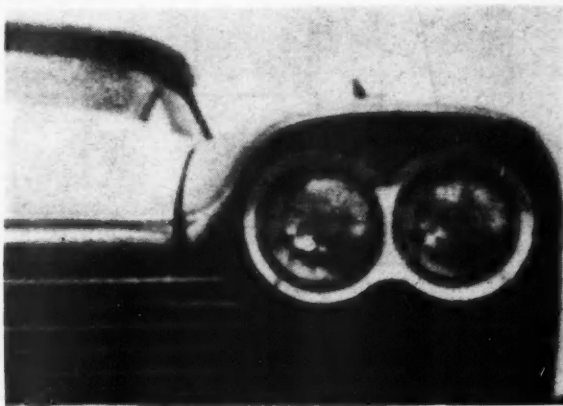


'58 . . . New windshield curves into roof.

STANDARD DUAL HEADLIGHTS



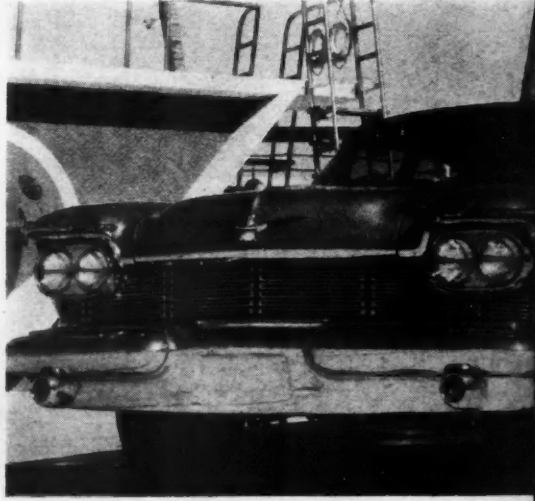
'57 . . . Single headlights will disappear.



'58 . . . Duals are standard on all models.

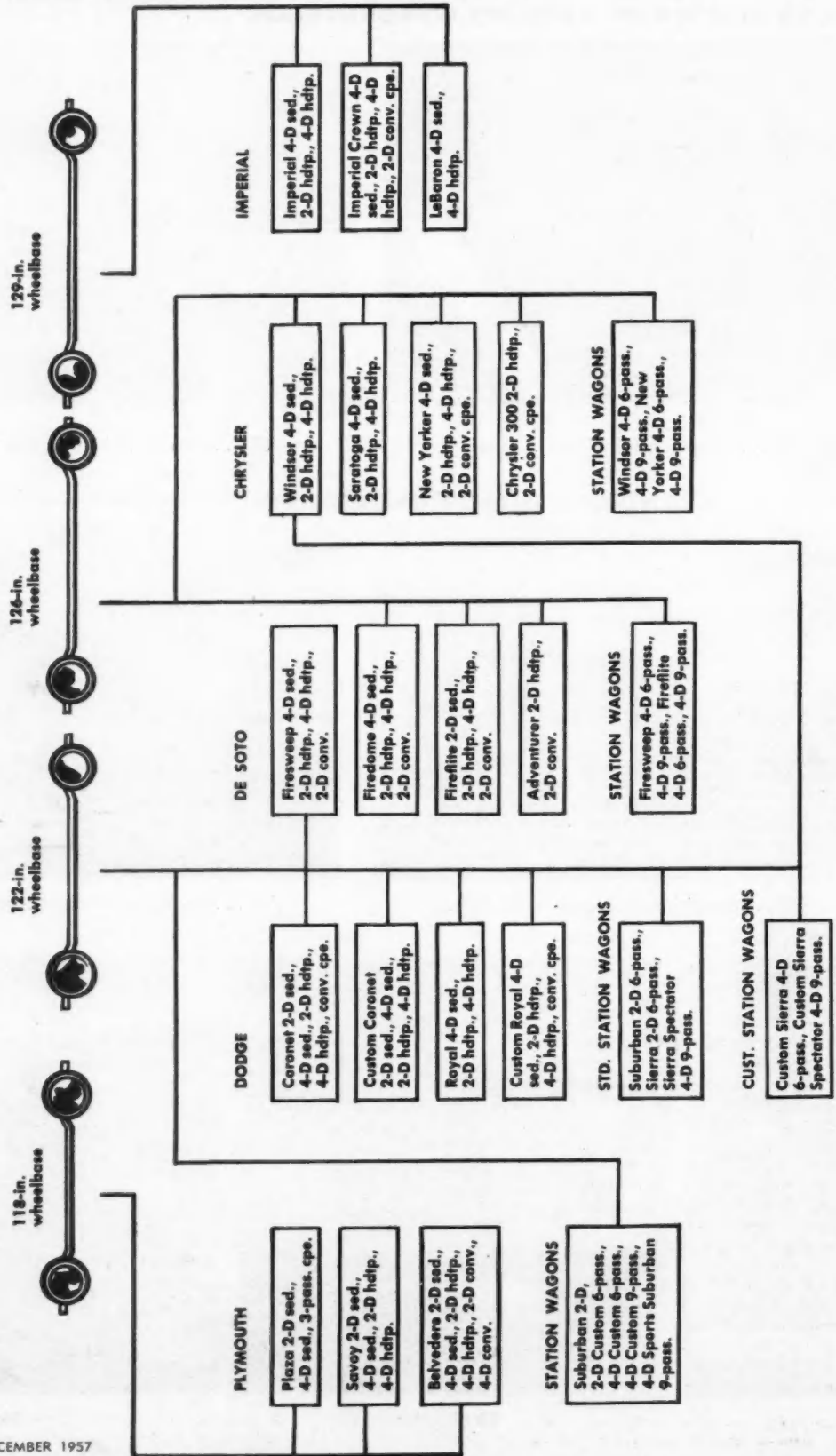


'58 Chrysler

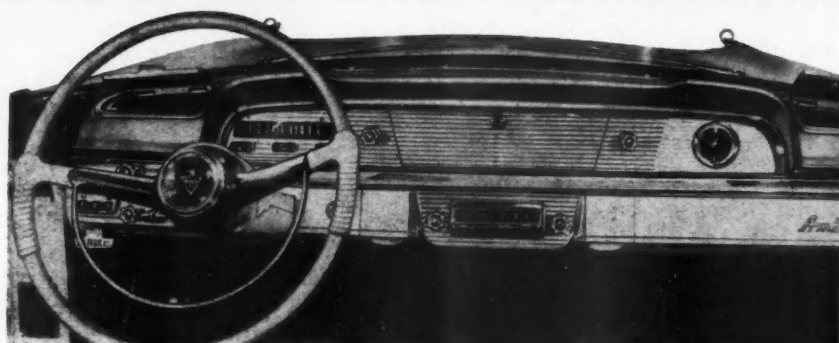


'58 Imperial

CHRYSLER'S 1958 FAMILY TREE



AMBASSADOR 1958



first
feel
behind
the
wheel

NASH AND HUDSON ARE DEAD—LONG LIVE THE AMBASSADOR!

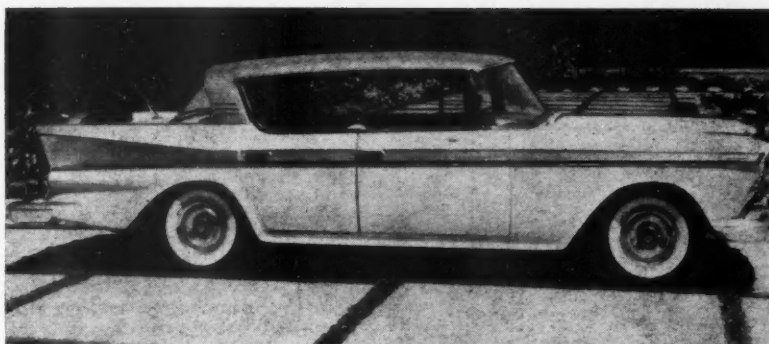
TO REPLACE the defunct Nash and Hudson, American Motors has introduced the Ambassador as a "senior car" in the Rambler series. Certainly not to its discredit, this car can be described as a bigger, more powerful Rambler (Nov. MT).

The body shell is basic Rambler, which in turn is a holdover from 1957 in structure and floor pan. The significant change is the nine inches added between the rear of the front fender opening and the front door, giving it a 117-inch wheelbase.

The engine is a bigger bore version of the AMC V8 used in the Rebel. Increasing the bore from $3\frac{1}{2}$ to four inches has upped displacement from 250 to 327 cubic inches. Coupled with a compression ratio increased from 8.7:1 to 9.7:1, this results in a respectable 270 bhp (55 more than the Rebel). Comparable four-door sedans have a weight difference of only 110 pounds, the Rebel being the lighter. The weight-to-horsepower ratios are another matter; the Rebel has a ratio of 15 pounds per horsepower, while each of the Ambassador horses is required to tote only 12.7 pounds.

Like the Rambler, the Ambassador has a standard transmission with overdrive and Borg-Warner's pushbutton-controlled Flash-O-Matic offered as options. The new Powr-Lok limited slip differential is also optional. The only significant chassis difference between the two cars is the front sway bar added to the Ambassador.

The Ambassador as well as its smaller relative, the Rebel V8, will have air suspension available as an option around the first of the year. However, AMC's version of the industry's latest and nearly unanimous development will be quite different in application. Slated for use only in the rear of the two larger Ramblers, it will take the place of the long-standard coil springs. A levelling or height control device of unspecified type will be employed. American Motors engineers say that, for the present at least, there is little practical reason to include air suspension beneath the front. /MT
(FOR DRIVING IMPRESSION, SEE PAGE 81)



LONGER WHEELBASE and different side trim make Ambassador (top) appear lower than Rambler but both have same overall height and basic body shell.

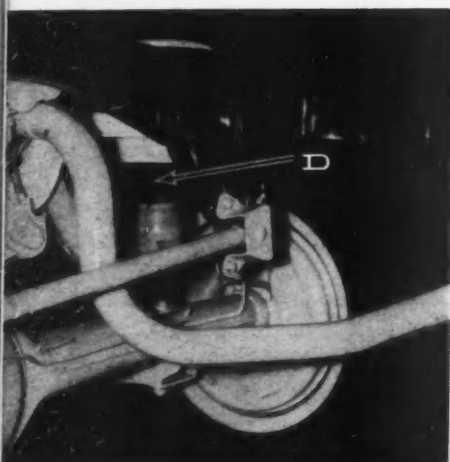


AMBASSADOR GRILLE is distinguished by smaller openings in egg-crate design. Styling makes Ambassador look wider; dimensions are same as Rambler's.

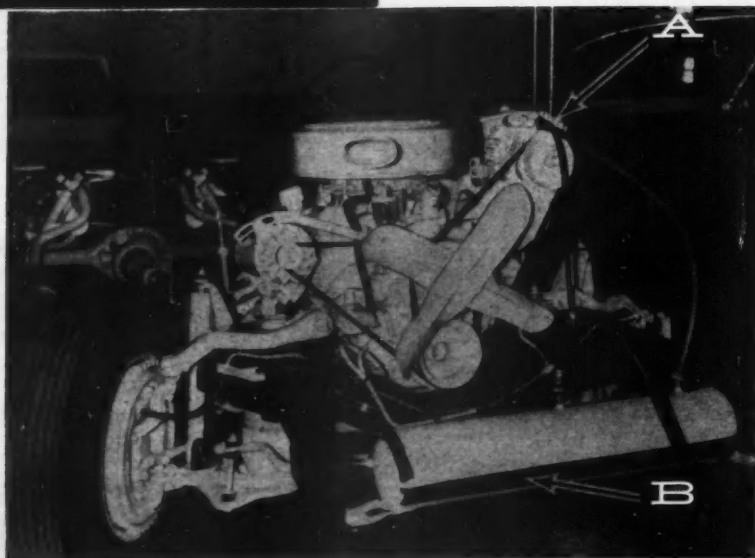
first feel behind the wheel

1958

BUICK



AIR SUSPENSION setup on '58 Buicks, optional on all models, is one of best offered in industry. The compressor, A, feeds air reservoir tank, B, up front in the frame. The rear levelling valve, C, and the rear air spring, D, are important components giving superb riding qualities. Larger shock absorbers, located in a new outboard position, are quite likely responsible for improved handling with the new air springs.



DRIVING TEST was made on

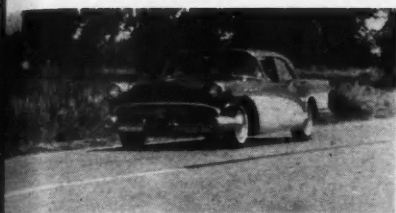
AN UNMARKED '58 BUICK cruising down your street would cause many to ask *what's that?* even if they owned a '57. The interior is more luxurious, and Buick fans can now get a huge *Limited* luxury job on the Super Roadmaster chassis but with eight inches more overall length contained in the trunk. Driveways with more than 11-degrees angle of slope will cause trouble—the *Limited's* rear overhang is 61.5 inches in comparison to 53.5 for the Roadmaster and Super, while the wheelbase is the same. Strangely, rear seating space is no more in the *Limited* either—in fact rear legroom in the new prestige model (and Roadmaster) is four inches less than in the more modest Super and 1.5 to 2.0 inches less than in the Century or Special.

More chrome trim, a new sweep to the sweepspear, portholes distinguished by their absence after many years, dual headlights on all models, and a jewel-like grille of 160 separate 3/4-inch square chromed pieces cater to the public's fancy for something fancier than their neighbor's old model.

Beneath the glitter and the all-new sheet metal, based on the same body shell, the story is definitely more intriguing. Effortless driving is enhanced by the new Flight Pitch Dynaflow which, much like, Chevy's Turboglide in operation, now has three instead of two turbines with the stator blades controlled solely by the accelerator pedal's operation. As the throttle is depressed, the stator vanes vary their angle from low to high. In place of low range (L), the indicator quadrant has a *grade retarding* (G) position which is to be used only under about 40 mph and then only for braking on hills. Reading from left to right, the Flight Pitch quadrant indicates P (park), R (reverse), N (neutral), D (drive), and G. Flight Pitch is standard on Roadmaster and Limited, optional on all others.

Three-speed synchromesh is listed as standard only on the Special with the previously used variable pitch Dynaflow as the option.

Engines, across the board, are nearly identical to those of '57. Changes are few and for the most part are confined to a new fan drive (standard on air-condi-



'58 prototype with '57 body.

tioned models), the basis for which is a torque limiting feature minus any external parts: at high engine speeds the fan is driven no faster than necessary for proper cooling with resulting increase in power and decrease in noise level. Vapor lock troubles are also decreased by suspending fuel lines away from the frame and close proximity to exhaust pipes. Radiator width is greater by more than three inches, and a full shroud now surrounds the fan. Compression ratios remain the same as in '57, as do power ratings—9.5 to 1 and 250 bhp on the Special, 10.0 to 1 and 300 bhp on the rest of the line, respectively.

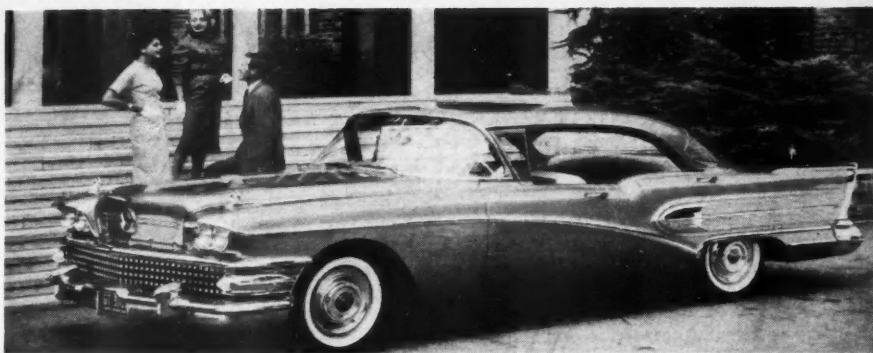
A mechanical prototype—'58 beneath but with the old sheet metal—was our trial Buick. A Century model loaded with everything but air conditioning convinced us that Buick has a winner for '58 as regards ride, handling, and overall comfort and performance.

The performance of our mechanical prototype Century with the new Flight Pitch Dynaflow was good though not startling: from zero to 45 mph took 6.8 seconds, while a corrected 60 mph required an average of 10.8 seconds. Cruising steadily at 50, we tried several floorings of the pedal and reached 80 mph in 9.1 seconds. Fuel consumption will have to await our road test at a later date, but larger needle valve seats in the four-barrel carburetor (standard on all but Special, which uses a two-barrel unit) allow greater fuel flow where maximum performance is desired.

Most surprising quality of the new air-suspended Buick is its ability to better previous models in overall handling and roadability. The *air* installation, here, is one of the best. Fast acceleration from a standing start causes virtually no tail end squat; panic stops from high speed cause less nose diving than expected, and stability when cornering fast is remarkably good.

Buick places its air reservoir tank up front in the frame. The latter is the same X-braced wide siderail type as introduced in '57 except that cars equipped with "Air Poise"—and it's optional on all models, standard on none—have open air dome sockets instead of the conventional coil spring seats. With air suspension, the ra-

continued on page 56



BUICK SPECIAL



BUICK CENTURY



BUICK ROADMASTER 75



BUICK LIMITED

first feel behind the wheel

DURING THE PAST MODEL YEAR, Ford managed to pass its arch-rival, Chevrolet. As the '57 sales battle drew to its conclusion, Ford still maintained a lead. But now many are wondering whether Ford, with a face-lift, no matter how generous, can keep its position in the light of Chevrolet's all-new visage.

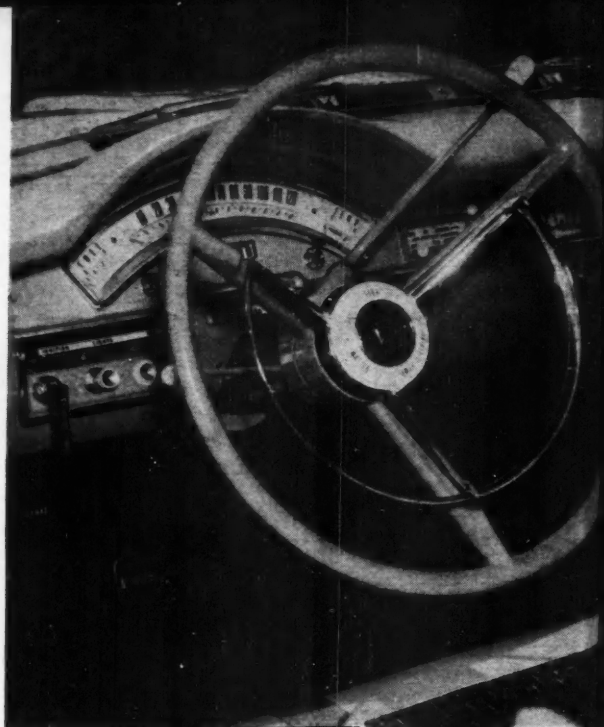
Granted, beauty is only skin-deep, but the skin—or outer sheet metal—is just about all that most folks apparently consider when they go shopping for a new family conveyance. Aware of this, the Ford Division reputedly spent about \$185 million upgrading what the eye sees for '58. "If," Ford executives say, "this is a facelift, then it's certainly a *very extensive one*."

The two series, each divided into sub-series, remain but with perhaps increased differentiation due to new and improved side trim featuring increased use of metallic finishes. Color schemes are to be more subdued but the interest in multi-toned cars seems to be increasing rather than to be diminishing. Size for '58 is little changed; Customs are 1/2-inch longer, Fairlanes 1/2-inch shorter.

Beneath all this eye-catching and pocketbook-baiting exterior change there are some equally important engineering developments. First of all, Ford offers air suspension as an option on all Fairlane and station wagon models. Custom and Custom 300 models will have conventional springing only, but there have been improvements here too. Then there's a new crop of powerplants with the biggest displacing 352 power-packed inches with an advertised horsepower of 300; this tops the opposing Chevrolet by 20 brake horsepower points; Ford has Chevy by the torque rating, too, with 40 pounds-feet. We'll go into this a bit later, but right here we'll say that our first *feels* behind the wheels of the *big two* give the performance edge to Chevrolet.

On the steel-sprung chassis, a new threaded bushing in the upper control arm—now sealed and lubricated for the car's life—gives a softer action combined with shock absorbers that have new, more precisely calibrated valving. The rear semi-elliptical leaf springs look like those of '57 but the rates have been softened a bit to give a noticeably better ride *without* increasing bottoming tendency. Ford's rear springs give a variable rate—as the load increases, rubber bumpers between the axle and spring hangers limit the deflection of the front part of each spring. This has the effect of reducing the operating length of the leaf springs and stiffens them under heavy load on rough surfaces.

Steering has been improved, too, but the lock-to-lock or turns needed are the same as in '57. What has been done is to make a



'58 FORD

new, Ford-made recirculating ball steering gear on the board. On a *non-power* Ford car, the steering effort was substantially lessened. Power steering equipment is a new pump that gives about 35% more pressure to cut parking effort an additional 10 percent. Steering ratio remains 27 to 1 overall.

The engine story still includes the venerable ohv Six that could just possibly be in for a new lease on life if the current economy talk holds up. The V8s are four in number and include some new developments. The 292 cubic inch so popular in '57 starts the list with few changes and a rated bhp of 205 at 4500 rpm with torque of 295 pounds-feet. Slightly de-rated from '57, this engine will probably power the majority of '58s with its two-barrel carburetor and simple, single exhaust system.



COMPARISON between '58 and '57 Ford Fairlanes shows face-lift changes. Note airscoop, mesh grille on '58.



BACK-UP LIGHTS now are between double oval taillights on '58. Fins are accentuated slightly over '57 style.

All new, though, are two big engines with 332 and 352 cubic inches displacement. The smaller of the new mills can be had with a two-throat carburetor, single exhaust, and turns 240 bhp at 4600 rpm. With a dual float, four-barrel carburetor, and single exhaust, the 332-inch engine develops 265 bhp. An option will be dual exhausts.

The larger of the two new powerplants (they share a bore of 4.00 inches) has a stroke of 3.50 instead of 3.30, has compression raised from 9.5 to 10.2 to 1, and has the 300-bhp rating. Torque of this powerhouse is 395 pounds-feet at 2800. Available only on Fairlanes and station wagons, this engine was under the hood of one of MT's two trial cars. A mechanical prototype with '57 sheet metal, this rig went to 60 from a standstill in about 9.5 seconds and in top ratio on the automatic gearbox quadrant slammed from an even 50 to 80 mph in 10.4 seconds. The rear axle was the standard 2.69 to 1 ratio used with the new Cruise-O-Matic transmission explained later. For a big Fairlane sedan with everything aboard including numerous test instruments, this is moving!

Our other test car had the 332-inch engine with four-barrel carburetor—the 265-horsepower job. An engineering prototype that had all '58 components, this car was overly heavy, and therefore it should not be considered average. Production models should materially better the performance of this automatically geared car: from zero to a true 60 mph in 12.3 seconds. From 50 to 80 was very disappointing—it took 16.6 seconds but as stated above, this proto is not typical. The transmission was sluggish from untold thousands of test miles, it had lead where

bare metal should have been, and had generally had a harder than deserved proving ground life.

Important features of these two new big engines begin with a cleaner look which means just what it says—the spark plugs are above the exhaust manifold and everything else from the bottom-left-front-mounted oil filter can is more accessible and maintenance will be greatly simplified. Also, like Mercury, the rocker covers are secured by bolts through the rims.

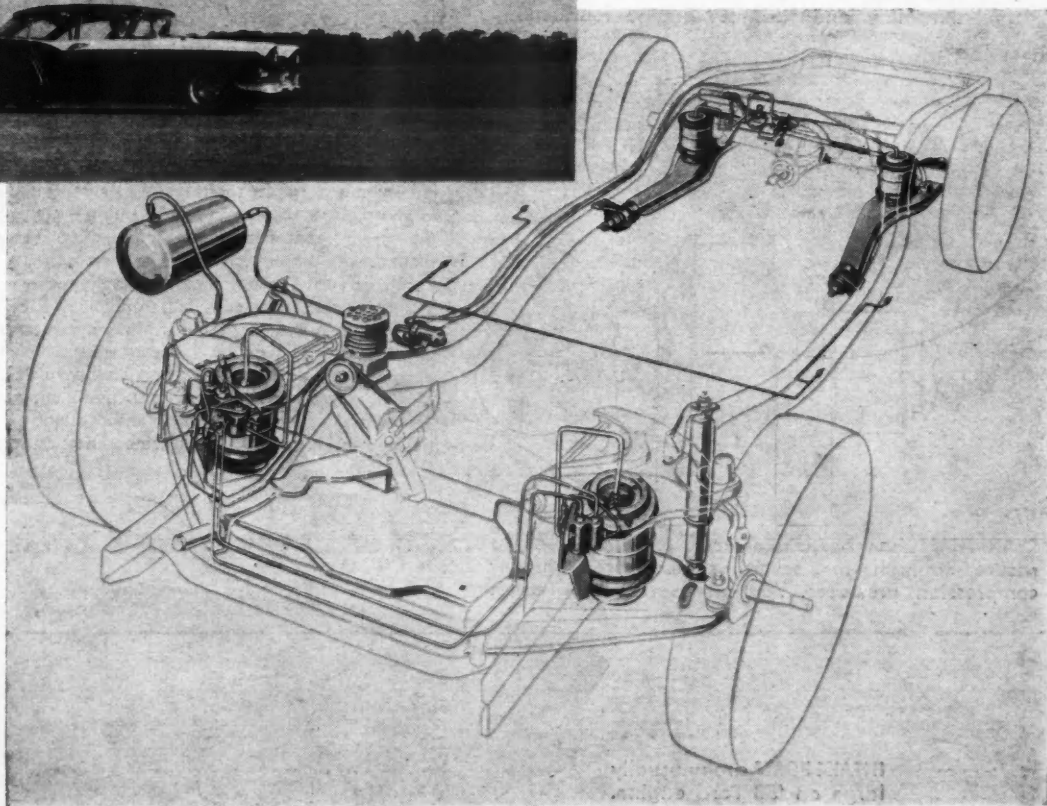
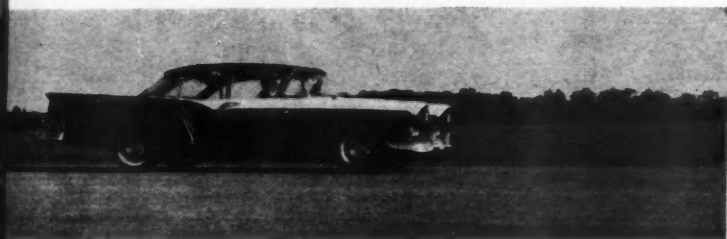
In neither of the two versions, the 332 or 352 cubic inches, are there any gimmicks. The wedge-shaped combustion chambers are completely machined—the heads sit on the block banks at right angles. Don't let the fact that the rocker covers sit at less than 90 degrees fool you on the position of the heads. The intake ports are unusually large; valve lift is considerably greater than in any preceding strictly stock Ford engine, and no two exhaust valves are adjacent to each other—a feature shared with Mercury and Lincoln engines.

New Ford-designed valve rotators increase durability and facilitate lubrication. The valve train itself has been simplified, is lighter in weight, and new and heavier valve springs are said to decrease valve float at high rpm's. We'll buy this for we repeatedly and intentionally over-revved the engines of our trial cars and float, while it did occur, came less violently and after greater abuse.

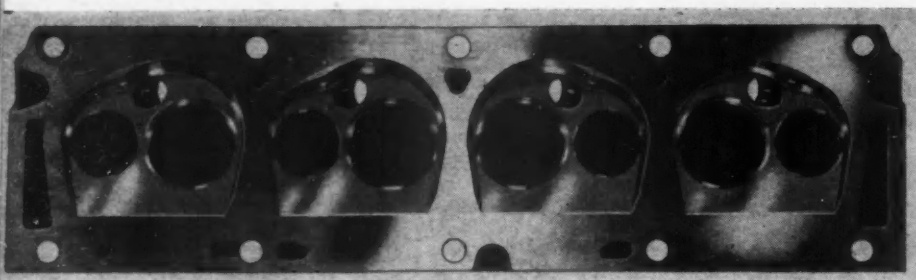
Deep inside the new engines new crankshafts have larger bearings with increased overlap for greater strength. Like brother Mercury, and for the same reasons, the oil pump has been moved inside the pan and through-the-block ventilation is bettered by

continued

by Joe H. Wherry Detroit Editor

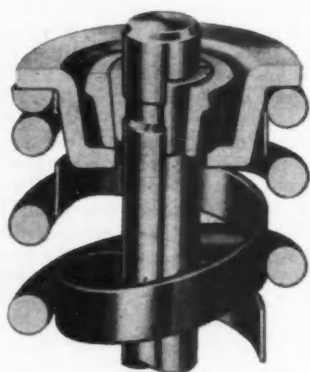


A LEVEL-RIDE and constant car height despite the load inside; and baby buggy smoothness on lumpy roads are achieved with the optional "Ford-Aire" suspension system, consisting of components seen here.

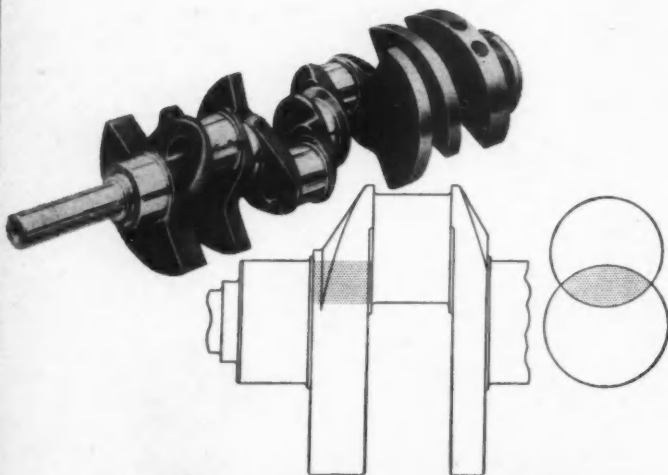
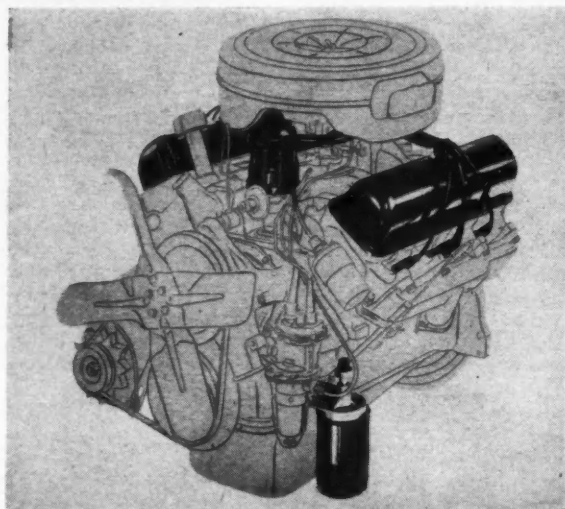


HEADS sit on the block banks at right angles.

IN NEITHER of the two versions, the 332 or 352-cubic-inch engines, are there any gimmicks for '58.



NEW FORD-DESIGNED VALVE ROTATORS increase durability and facilitate engine lubrication.



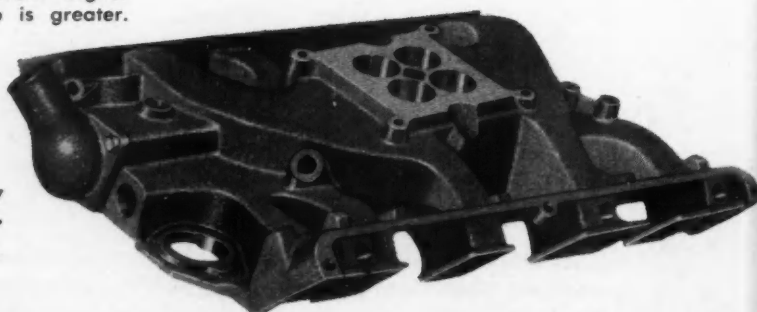
CRANKSHAFT has been reinforced at vital areas to assure strength for severe stresses from higher compression pressures. Journal overlap is greater.

moving of draft tube from the front of the lock to the rear.

Ford engineers like to point to the new crankshaft with pride; it's a precision-molded affair. The advantage of this type over the average forged shaft is that the engineer has greater opportunity to place the counterweights, and to shape them, without being limited by the parting of dies as is the case with the forged shaft. In other words, molding the crankshaft eliminates the need of compromise in the designing. These new engines should prove extremely durable and, according to Engineer Bob Childs of Ford Division Engine Development, will require less maintenance and give extended, trouble-free life.

The suspension story is just as interesting, especially since the larger Mercury has much the same system, something we were unable to sample because of unavailability in the case of the Big M. The usual benefits of air suspension apply equally to the "Ford-Aire" system: a level ride and constant car height despite the load inside and baby buggy smoothness on lumpy roads.

INTAKE PORTS are unusually large on '58 Ford engine.



Robert Burns of this division's suspension department gave us as wild a ride as any we've ever had on the Ford Test Track. Through the 150- to 300-foot radius curves—every one of them as flat as a pancake and slippery damp in a few spots too—we went just as if we were out to set an elapsed time record. Then Burns stopped, opened his door and said, "Now you try it, and don't hesitate to really pour it on!"

Without hesitation, and with a heavy foot, we did "pour it on" and after a couple of hours decided that Ford's air suspension is probably the most like the sort handling enthusiasts would prefer. On hard corners there is as much, maybe a bit more, roll than you get with recent Ford ball-joint conventional steel suspensions. But, and this was brought out forcefully, on long, continuous sweeping curves, the levelling system, after its initial delay, levels the car and you sweep around mile-long curves perfectly flat—a new experience.

On quick, tight corners the air-sprung Ford Fairlane heels over. If you take 'em real fast and push to the breakaway point you get a real surprise—the rear end stays put longer without breaking than the old jobs. Why? We believe it's largely due to the *trailing arms* that position the rear axle securely, allow no fore or aft movement on either end, no wind-up from suddenly applied torque, and keep the rear wheels precisely where they should be in relation to the frame.

Up and over the test track's 30 per cent grade we drove the *air job*. Abrupt rises or dips are still felt—naturally—but with much less force. Bound or rebound is lessened or at least more thoroughly and effectively dampened due to the variable rate characteristics of the air system.

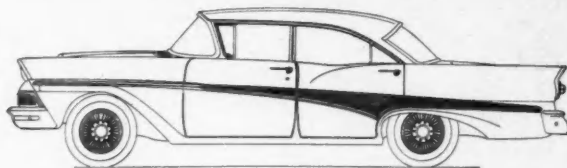
Ford uses a single 300-psi high-pressure reserve tank (at engine compartment's right front), a single-cylinder compressor, two levelling valves in front, one at the rear, and stabilizer bars both front and rear. The quick levelling required with the usual changes in vehicle load is accomplished by tying in the air system with the courtesy light switches in the doors. The air lines are either copper or nylon for durability and resistance to corrosion, the former for the main lines to the air domes while the nylon is used for the remaining lines.

Although the trailing arm rear suspension is entirely different from the leaf sprung rear end of the conventionally sprung Fords, the front suspension is little different. Upper and lower control arms are about the same, the ball-joints are still used, and we understand the geometrical setup is unchanged.

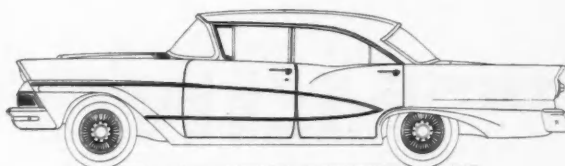
Finally a new transmission development, Cruise-O-Matic, will be offered optionally but *only* on Fairlane and wagon models. The quadrant will read, left to right, P, R, N, D2, D1, L. Look familiar? You're right—this is a dual range box. D1 always gives first gear starts, shifts to second at a maximum of 54 mph, to third at a top of 81 mph; direct downshift from third to first occurs at 7 to 10 mph. This one-stage downshift is butter-smooth. Furthermore when you're drifting along in third at speeds anywhere between 26 and 60, a quick floorboarding of the pedal downshifts this box to second gear. In D2 (or top) range you have only two speeds—starts are made in second gear, then the box shifts to direct drive third at any point between 14 and 81 mph depending on how hard your foot sits on the accelerator. In D2, however, this Cruise-O-Matic *cannot* downshift to first gear (it will to second) and for this reason engineers believe owners who must contend with icy winters will gain a new respect for automatic boxes. When pointed uphill in DRIVE, Cruise-O-Matic acts as a *bill bolder*; you use brake pedal only to stop car—do not have to retain foot on brake.

Of course L or LOW gear doubles as the hard pulling and engine braking position. You can manually shift down to "L" at any speed under 20 mph; it's then locked in low gear. However, if you need braking assistance, you can lever the quadrant indicator to L at any speed and it'll drop to second gear at about 80 mph, hold there until speed drops 'way down to 20, and then the final drop into first gear takes place.

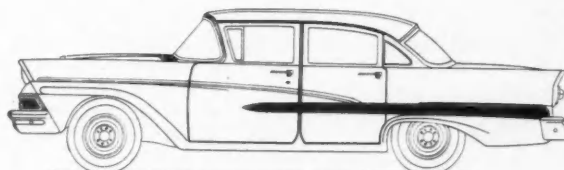
The tried and true Ford-O-Matic is still available with the Six and with all V8s. Great cars, we'll bet on the '58 Ford to hold its lead. It's that good! /MT



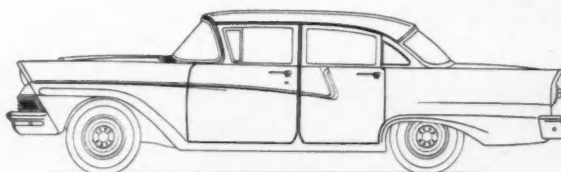
FAIRLANE 500



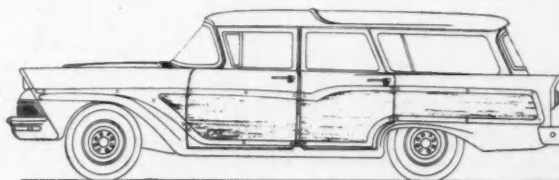
FAIRLANE



CUSTOM 300



CUSTOM



COUNTRY SQUIRE



first feel
behind
the
wheel



1958 LINCOLN

and

MASSIVE, ALL NEW, and fabricated in the unitized manner with other improvements as important as its structure, the Lincoln and its twin, the Continental Mark III, are pioneering for FoMoCo—make no mistake about that. This could be the start of an industry-wide trend toward integral body-frame construction—it could also start a new race among prestige car makers with still larger and heavier cars the goal.

Built in a plant expressly designed for unitized structures, the '58 Lincolns are virtually completed before they receive the engine. Down the elevated body carrier track comes the car minus only hood and engine. The wheels are in place, the driveline ready for the transmission, the windshield is installed. The engine is dropped into position, driveshaft hooked to transmission, underhood connections made, hood installed, and the car moves forward to final make-ready. After this the

car is given a trial run in back of the factory, adjustments are then made, the car is prepared for transit to its destination and away it goes—all 5000-plus pounds of Lincoln.

The combined unitized frame and underbody structure includes the engine supports and sheet metal surrounding parts, the siderails, box members, crossmembers, and the rear compartment pan. To this is welded the body sides, roof, front, and rear quarter panels—fenders if you prefer to call them—and then the entire structure goes to the body dip where it is submerged over hood and rear deck level and receives the priming coat. Final painting is done in spray booths with only hood, windshield, and engine lacking. No more should rocker panels rust out because of the difficulty of the former spraying of primer.

What rolls forth from the line is this country's largest production car—the wheelbase is five inches longer; length overall is up 4.4, height is down about 3.5 inches. The width appears greater but is actually 2/10 less. The tread is now the same, 61 inches front and rear (in '57 the front tread was 58.5, the rear 60.0 inches). Your new Lincoln will be 19-feet, one-inch long!

The styling, in brief, shows the influence of the Continental Mark II. In fact, the new Mark III Continental, though considered a separate make by the new combined Lincoln-Mercury Division, is a deluxe and only slightly different version of the '58 Lincoln. There will be two four-door Continental sedans, a two-door hardtop which is distinguished by a retracting rear window (much in the manner of the Turnpike Cruiser), and a retractable hardtop convertible. Lincoln will retain the Capri and Premiere models, the latter being the more expensive. In each series there is a two-door hardtop, a four-door hardtop, and a four-door sedan with very narrow door pillars—a fea-

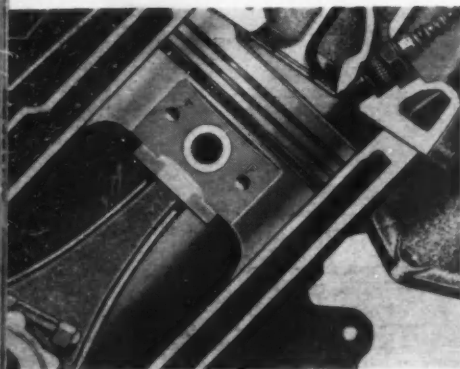
ture shared with the Continental four-door sedan.

Differentiation between Lincoln and Continental is slight—the former has a grille with horizontal bars predominating while the latter's grille is of egg-crate design. The same difference extends to the brightwork extending across the rear end with a large, integrated tail and back-up light serving the Lincoln, while the Mark III has three separate lights on each side at the rear. Of course the Continental four-point star and a different stylized nameplate distinguish FoMoCo's entry in the prestige field. Mechanically and in overall size these cars are twins.

The interiors of both cars reflect the Continental Mark II. Particularly the instrument panel's well-arranged grouping and the placement of the power window controls in the armrests, the selection of the richest fabrics or top grain cowhide for upholstery, and the deep, padded dashboard remind you that, this, you've seen before.

Interior space exceeds that of the Mark II, is curiously less in some dimensions than those of recent Lincolns. For instance, when a car grows to such large exterior proportions, one would naturally assume that the interior space afforded the occupants would also increase. Unitized construction generally affords more leg- and headroom. However, the best way to understand the interior size is to chart the comparison of '57 and '58 Lincoln interiors (note especially the headroom):

	1957 LINCOLN	1958 LINCOLN
Headroom, front	39.5	35.0
Headroom, rear	38.0	33.8
Legroom, front	45.4	44.4
Legroom, rear	42.4	46.6
Hiproom, front	61.4	60.9
Hiproom, rear	63.2	66.7
Shoulderroom, front	59.0	63.1
Shoulderroom, rear	57.6	63.0-4



NEW PISTON has step cast into top surface to mate with new angle-set machined head. Step drives into narrowing wedge as it nears top of stroke, jetting fuel-air mixture across spark plug for greater efficiency.



CONTINENTAL MARK III (l), Lincoln Premiere (r).



REAR VIEW shows Premiere (l), Continental (r).

CONTINENTAL

On the other hand, the new clean lines of the Lincoln may well presage the diminishing use of chrome, the longer hood, increased glass area. Canted dual headlights prevent even darkness from hiding the distinctive lines.

From behind the wheel the driver is immediately aware that he's in a huge car. The illusion of obesity is, however, quickly dispelled when you place the lever-operated transmission control in DRIVE position and mash the throttle. For a car weighing right at 5000 pounds you are surprised to zoom to a true 60 mph in 9.9 seconds (average of six runs). Just for kicks we tried this run in LOW—the average time came down to 9.5 seconds. Reading the big semi-circular speedometer at a corrected 54 and 85 this car shot from 50 to 80 mph in just 10.4 seconds.

Of course, a prestige chariot does not require rocket-like take-off, but in the

handling department, this rig will stack up with the finest, anywhere, in the big limousine class. Beneath the rear end is a precision-positioned rear axle. True trailing arms with coil springs (air suspension is scheduled a short time after introduction) prevents more than the slightest trace of squat when starting up; the tail end stays put with the most ferocious cornering—MT ran this car in a rutted series of roads behind the plant as well as on the Dearborn engineering test track—and the ball-jointed coil-sprung front end again displays much of the feel that the '52 Lincoln made famous. Railroad crossings and dips did not make it bottom; control is excellent.

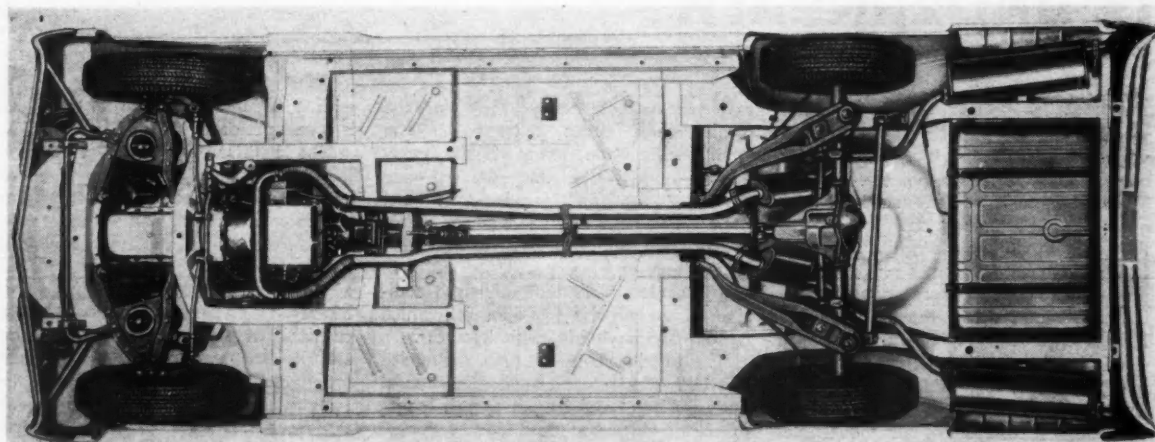
The torque, with the trailing arms in the rear, is transmitted directly to the integrated body/frame structure and there is no wind-up of the axle. The latter was the optional limited-slip design with 2.87:1 ratio on both our checking cars, a

Lincoln Capri and a Mark III hardtop four-door sedan. There are new 14-inch wheels with fat 9.00 x 14 tires in place of the 8.00 x 15 tires of '57. The brakes (power is standard on all '58 models) are much larger; they now have a total of 262.45 square inches of effective lining area and their action is positive. The brake drums are quite ordinary, have longitudinal exterior ribs, and took nearly a dozen hard stops before a hard pedal was felt due to fade.

Air conditioning continues to be optional, is operated (with the heating system) from a single dashboard control knob. Our test day was hot, the rutted handling roads were dusty—conditions ideal for proving the efficiency of the air-conditioning system.

Such performance as outlined above requires a massive engine for rapid locomotion of such mass. Lincoln, for '58, has a brand new engine displacing 430

continued on page 76



NOTE ABSENCE of frame in underside view of '58 Lincoln. Unitized body-frame construction may start industry-

wide trend, especially in prestige car market. Sheet metal surrounds parts, siderails, box, cross-members.



first
feel
behind
the
wheel

1958
MERC



THE NEW BIG "M" STORY IS UNDERNEATH

FAILING TO RECOGNIZE the first Mercury you see will be excusable—you might think it's a '57. For '58 there's a moderate facelift. All phaeton models, Merc's term for four-door hardtops, have new and wider rear windows which give the roofs a hanging look. Then there is new sheet metal in front with deeper-appearing grille and bumper units of much cleaner design. In the rear the tail lights have a chromed, gadget jutting forward—this has been called Mercury's *baseball bat* for '58. Even more flashy is the lighted medallion which is standard inside the rear window of all convertibles and the Turnpike Cruiser.

Air suspension is optional on all models—it wasn't quite ready when MT drove the Big M. However, Mercury has

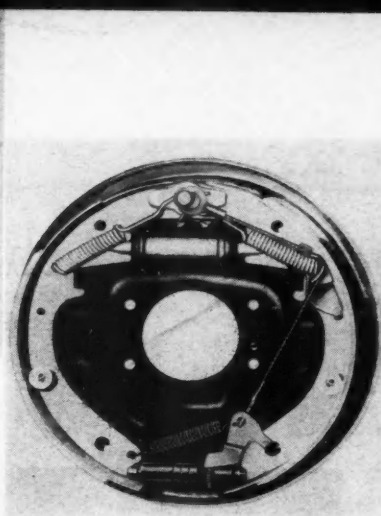
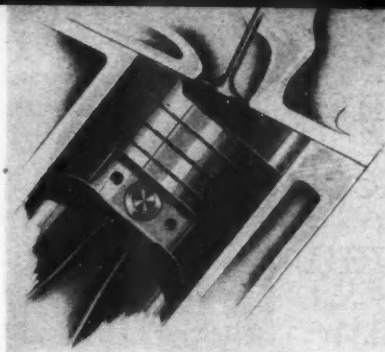
two very potent *baseball bats* for the coming sales battle: a terrific *all-new engine* with a top rating of 400 horsepower—huskiest at this writing—and the new semi-prestige Parklane that promises to be a real winner. The Turnpike Cruiser has been given top category in the smaller Montclair series and will now include a four-door model in addition to the regular two-door job which created Mercury's big news last year.

The big Parklane sits on an extended 125-inch wheel base chassis. This model outranks Edsel and has an overall length of 220.2 inches (seven inches longer than Montclair and Monterey series), has a rear deck that's extended exactly seven inches more than the two smaller series, is about ½-inch higher, has an engine

with 430 cubic inches displacement, and is a real performer.

The Parklane, in spite of its much longer overall length, does *not* provide any more space inside. In fact legroom, headroom, hiproom, and shoulder room are 46.2, 39, 63.3, and 60.2 inches, respectively, in all Mercury models, with a slight decrease in headroom in the Montclair Turnpike Cruiser. The seat cushions of all are 10.55 inches high and the front seats of all have five inches longitudinal adjustment. We cite these facts to prove a point: you don't necessarily get *more usable* car when you spend extra money for a bigger-sized package. At time of writing, the Parklane's trunk capacity had not been measured, but it does stand to reason that it will be at

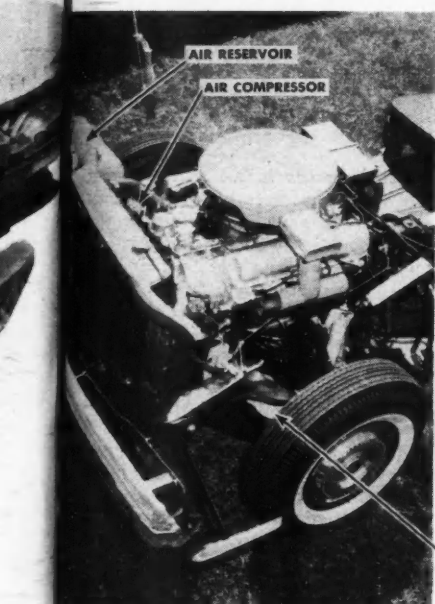
NEW MERCURY ENGINE has cylindrical wedge combustion chambers. Top of each cylinder block is cast on 10-degree angle in relation to bore of cylinders. Valves are slightly larger now.



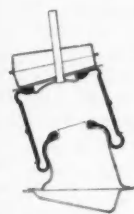
AUTOMATIC ADJUSTMENT is incorporated in '58 Mercury brakes. As brakes wear, use actuates pawl, taking up the shoes the precise amount.

by Joe H. Wherry Detroit Editor

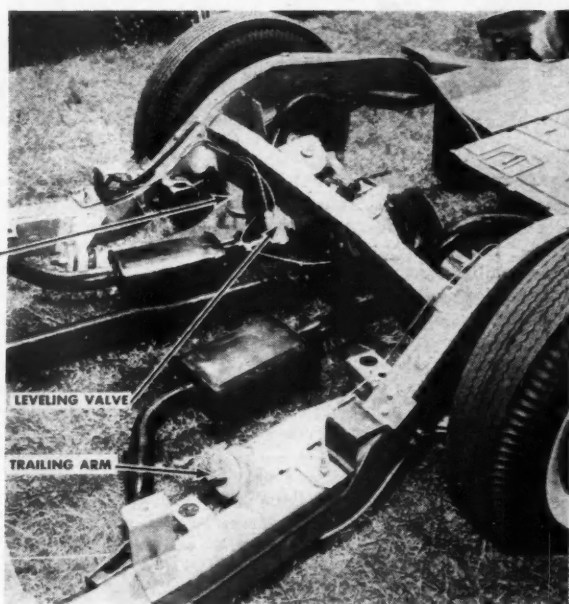
58 MERCURY



REAR AIR SPRING



FRONT AIR SPRING



LEVELING VALVE

TRAILING ARM

AIR SUSPENSION, almost commonplace in '58, adopted also by Mercury as optional means of smoothing bumps.

least fractionally larger than the 31.2 cubic feet offered by the 122-inch wheel-base smaller models.

Potential buyers will face a rough choice as to color schemes, for there are to be two choices (a standard and an optional) in three different paint arrangements: there are solid colors, two-tones, and *flo-tones*. Even the solid colors allow you an extra splash of color in the sculptured rear-quarter panels. Then if you prefer the back-up light *below* the turn signal and stop light combination, you are forced to accept the Monterey or Montclair—but if your esthetic preference is that the back-up light be placed *between* the running light and the stop light and turn indicator, then the Parklane is for you.

Instrument panels are little changed, but the Montclair and Parklane and top line wagons share additional dashboard trim and a horizontal textured pattern. The steering wheels are all deeply dished, have four spokes with a horn ring covering about two-thirds of the circle. The ring, we feel, is placed just a bit too close to the outer rim for most efficient wheel handling.

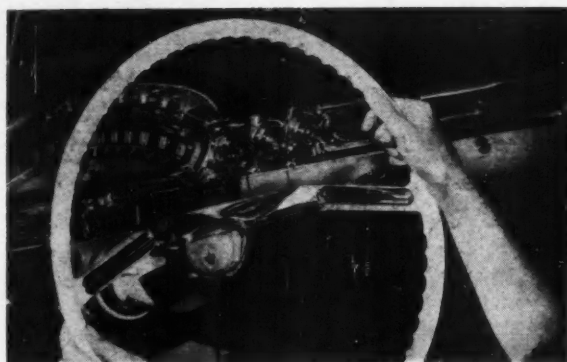
The entirely *new* engine, called the *Marauder* in all versions, is available in two sizes. Each has a bore of 4.30 inches and with a 3.30-inch stroke displaces 383 cubic inches; with the longer 3.70-inch stroke, the pistons displace 430 cubic inches. Compression ratio is 10.5 to 1 in all.

With the four-barrel carburetor, the

smaller displacement engine is available in an *economy* series with the secondary barrels controlled so that they open only at fairly high speeds. Thus rigged, the 383-inch engine develops an advertised 312 horsepower at 4600 rpm. Without the venturi or throttle valve restrictions in the two secondary barrels, this engine puts out 330 bhp at 4800. The 312-horsepower unit is standard equipment across the board on all 122-inch wheel-base models, while the 330-horse job is optional on all of these Monterey, Montclair, and station wagon models. The torque developed is impressive: 405 pounds-feet at 2900, and 425 at 3000 rpm for 312 and 330 horsepower, respectively. Automatic transmission is standard only with the larger engine.

continued on page 67

first
feel
behind
the
wheel



OLDSMOBILE

"OLDSMOBILITY" is the watchword for the car that celebrates its 60th year of continuous production. Completely restyled from bumper to bumper, from the dual headlights, standard on all models, to an extended and lavish use of chrome trim, both 88s and the big 98 appear longer than ever without actually being any longer at all. Olds is out to recapture the ground lost during the last two years. Overall width is two inches more; height is not changed, wheelbase of each series is up 1/2-inch.

As far as accessory changes are concerned, there's a new "Trans-Portable" radio that can be removed from the dash, similar to Pontiac; the new "Safety Sentinel" speedometer warns of exceeding any

pre-set speed by flashing and buzzing; the headlight dimming Autronic-Eye has been improved by substituting transistors in place of vacuum tubes and sensitivity can be adjusted by a new knob control; and the capacity of the ever-increasingly popular air conditioner compressor is increased by about 30 per cent.

A new sales push will be on the Fiesta station wagon line. Jack Wolfram, Olds General Manager, predicts his wagons will account for at least 10 per cent of Oldsmobile '58 production, with every goody, including genuine leather trim, to be offered.

An old word with more new push will be *economy*. Although engine displacement remains the same as last year

—371 cubic inches in all series—compression ratios have been upped 1/2-point to 10.0 to 1. The intake manifolds have been redesigned with larger porting for improved breathing and the camshaft has a new contour with wider lobes. Then there are new valve springs of conical design which are more durable and offer better high speed valve action. Of course, hydraulic lifters are standard and it's our understanding that no solid lifters will be available. A major change underneath is a new crankcase with a four-quart capacity instead of the previous five quarts. The pan extension used in '57 has been determined to be "unnecessary" and, with the suspension changes, to be more or less in the way as well.



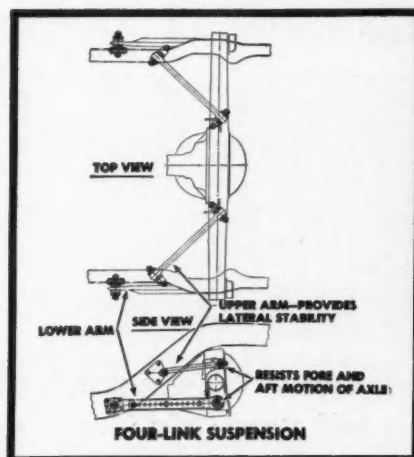
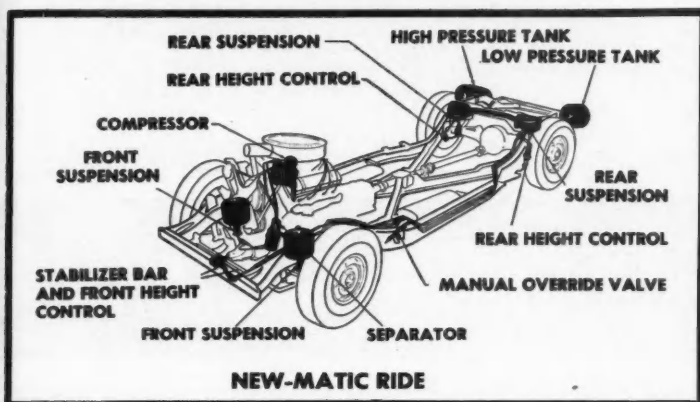
DYNAMIC 88



98 CONVERTIBLE COUPE

SUPER 88 FIESTA WAGON

OPTIONAL AIR SUSPENSION SYSTEM utilizes four compressed air chambers, one at each wheel. High pressure air is supplied by a twin-cylinder compressor that runs on a dual pulley off engine. Height valves control car level.



FOUR-LINK REAR AXLE SUSPENSION is incorporated in the air-suspended car set up to help make the '58 Oldsmobile one of the smoothest riding cars offered.

Economy with 371 big inches? Yes, according to Olds engineers. The four-barrel carburetor used with the Super 88 and 98 series now guzzles some eight per cent less premium fuel due to the above mentioned engine improvements and in spite of the larger venturis.

The plain "88" is now named the "Dynamic 88" and features a single two-barrel carburetor, which is identical to the center pot used with the three carburetor J-2 arrangement, and is claimed to give 20 per cent better mileage than last year's 88. In 1957 the rated power of all models was 277 and, since the horsepower race is still quietly on, '58 sees the Super 88 and the 98 developing 305 bhp at 4600 rpm with the four-throat carburetor. For those who want more neck snap, the J-2 triple dual-barrel carburetor is optional; with this the bhp is rated at 312 at similar engine speed. New throttle linkage now causes the two end carburetors to open more easily. If you're in a hurry, you can then get to 60 mph in about nine seconds.

In addition to manifold changes, breathing is improved with new air cleaners. On the Dynamic 88 an aluminum foil element is standard (a paper element is optional), while the Super 88 and the 98 use replaceable elements.

New muscle has been shot into the Jet-away Hydra-Matic in the form of a new thermostatic control which smooths shifts and helps particularly when starting cold. The tendency of delayed upshifts is decreased. The old bronze washers have been replaced with needle thrust bearings in the front and rear units. The governor valves have been made self-

cleaning, and a new but as yet undisclosed clutch material, said to be more durable, combine to give more dig to the automatic-equipped models which, we hear, will amount to about 99 per cent of all '58 Oldsmobiles. On the "Dynamic 88" you can still order the three-speed stick shift box.

Of course, the big *new* feature is air suspension, optional on all series and called "New-Matic Ride" by Olds. Though generally similar to all other domestic air systems, Olds engineers have tried a couple of ideas that can be legitimately characterized as somewhat different. Termed a *closed system*—because air exhausted from any or all of the four air bags is stored for re-use—this particular arrangement utilizes two air reservoirs. Both air tanks are located in the rear—most other cars have their reservoirs up front—the *high* pressure tank, by far the larger of the two, is aft of the right rear wheel, the low pressure unit is on the left side.

While chatting with Tommy Tompkins, Olds experimental engineer, and Assistant Chassis Engineer Ralph Perkins, we asked whether there was any crash hazard because of the rather unorthodox location of the tanks. Both gentlemen assured us that many staged collisions had proved there was no shrapnel effect, and that damage to bumpers and rear quarter panels generally exceeded any done to either tank. In the event of serious accident, the worst thing happening to the tanks was collapse without any balloon-bursting effect at all.

Air is drawn into the system, when needed, by the two-cylinder compressor located high and at the left front of the engine. Below the latter is a special

separator valve which filters out any impurities like oil or dust. Attached to the rear side of the front frame crossmember is one levelling valve supplemented by a nearby T-connection. Another levelling, or height control, valve is at each side in the rear. To assist front end stability, a new stabilizer bar has been added. The height-control valves direct air from the high pressure, or storage reservoir, to the air spring or springs requiring it due to added weight or stresses imposed. But as this load decreases, this air, instead of being exhausted externally, goes into *re-use* storage in the low pressure tank . . . the reason for calling the Oldsmobile system *closed*.

As is the case with Pontiac and Buick, there's a manual override valve—located inside of the left frame outside rail just aft of the front wheel and controlled beneath the dash—to provide an extra four inches of road clearance in emergencies. With rear end overhang becoming something of a problem if you have a steep driveway, this feature can save your tailpipes.

We asked Ralph Perkins why Olds did not go for trailing link—or *four link* rear axle suspension—in their steel-sprung cars, as they have on the air job. "Basically because of greater cost," was his reply. "We did not feel that air suspension buyers should have to help absorb it."

By somewhat the same token Perkins spelled out the reason for not offering a non-slip rear axle in '58—Olds is still working with it but does not feel the result is justifiable. Olds maintains that their air ride will improve roadability as much as their all-new styling will help sales.

—Joe H. Wherry

(FOR DRIVING IMPRESSION, SEE PAGE 81)

**Remember this
"guess which" hot
car in last month's**



**Issue...? Now we
can tell you - It's the**



1958 PONTIAC

by William Carroll

WHAR'S INDIANS on the warpath" out of Pontiac, where youthful management is building a fire in one of GM's oldest teepees. The drums were dusted off in July of 1956 when Semon Knudsen arrived to become Pontiac's chief medicine man.

"Fellows," he said at his first management meeting, "you can sell a young man's car to old people—but you can't sell an old car to young people." Which acknowledged what MOTOR TREND readers have known for a long time—that pre-'57 Pontiacs were just about the most conservative collection of transportation you could buy.

Recently, at the ex-Packard proving grounds in Utica, Mich., we drove results of Knudsen's demand for a "young" car. And we liked it. But whether gallons of midnight oil and the honest sweat of engineering and the building of completely new '58 models were worthwhile will be determined only when you take time to test drive a Pontiac for yourself.

Common to every Pontiac is an all-new Fisher "A" body shell shared with Chevy, mounted on a cruciform "X" frame similar to that under the 1957 Cadillac. The new body has heavier rocker rails for added resistance to weave and thicker rear door pillar sections to improve side impact safety. Front fenders mount around a sturdy radiator baffle assembly which is flanged rearwards around the fan, shrouding the blades and improving cooling efficiency. Effects of engine heat on battery life resulted in a mount which permits cool outside air to circulate around case.

Race car suspension was modified to suit new spring systems with the happy

results of a softer ride and improved security on rough or twisting roads. Rear axles (sprung with either air or coil springs) are held by trailing links leading forward to frame crossmembers. To reduce body sway during sharp cornering, the roll center was raised by an ingenious bracket linking differential case to the frame. Ball joint spindles hold front wheels sprung either by air bottles or coiled steel. Tubular shocks are used all around. Torsion sway bars are fitted both front and rear of air suspension cars but to front only of coil spring chassis.

The Pontiac V8 block has been cored and bored to 370 cubic inches (from 347) and purrs with 8.6, 10, or 10.5 to 1 compression ratios. Fully machined cylinder heads should help to reduce octane requirements as carbon deposits build with mileage. Two-throat, four-throat, three two-throats (vacuum-operated linkage opens the extra pair) or fuel injection are optional on every model Pontiac. However, don't expect the factory to be exactly enthusiastic about fitting an economy engine in their handsome Bonneville sport coupe. Extensive engineering was applied to carburetors reducing their sensitivity to restrictions in the fuel passages which lets us hope '58 engines will idle a lot better. It should also give improved gas mileage if you can resist temptations to enjoy the power pedal. Fuel injection systems were given a good going over to simplify complicated controls and improve gas mileage potential.

As a result the Indian's revamped bonnet covers what is possibly the world's greatest collection of power options. Brake horsepower ranges from 240 to 310, de-

pending on compression ratio and fuel induction system selected. All the 8.6 to 1 options percolate happily on regular gasoline, while high compression jobs do their best on premium fuel. It was interesting to find that shrewd Pontiac engineers specify heavy duty batteries and high torque starters on all premium fuel engines to spin cubes at reasonable starting speed.

To stay in the traffic signal derby and provide poop to pull a bigger car and its goodies, Pontiac had to make surprisingly few changes to its '57 engine. Piston pins are, now press fitted to improve durability, while a new exhaust manifold has enlarged and more streamlined runners. Detail attention was given slight restrictions in exhaust ports below the valves, resulting in a passage 17 per cent larger than last year's. Hydra-Matic-equipped engines rate a new cam holding the poppers open longer for a three per cent horsepower and torque gain in the most useful middle rpm ranges. Other improvements include redesigned compression rings, improved rocker cover seals, longer oil filler tube and a forged steel crankshaft. Hidden away under the power unit are a couple of new rear engine support insulators. Distance between the brackets has been increased, rubber made softer and more of it used to eliminate the least bit of vibration that could creep into the body shell.

Possible trouble from dirty fuel is nearly eliminated by a cleanable (every 5000 miles) plastic filter in the fuel tank, a gas line filter in the carburetor and fine mesh filters in the FI setup. The fuel tank is filled through a door beneath the left tail light and is vented in the center. A sealing non-vent cap prevents leaking of a filled

tank parked in sun on a sloping driveway.

A lot of General Motors wampum was given fuel injection medicine men to improve the offering for '58. We're told that changes included use of a cast aluminum intake manifold, mesh screens in fuel nozzles to prevent plugging, a less complicated fuel mixture control, elimination of the high vacuum shutoff, use of a simplified hot starting switch and inclusion of a throttle return dashpot to improve idling.

Power increases required a clutch with 16.5 inches more facing area and a lighter, smaller synchromesh transmission with drop-forged, heat-treated, shot-peened gears for strength and longer life. Hydramatics have improved resistance to leaks at higher pressures of full power starts, plus a wise little thermostatic valve to give the same smooth shift pattern when cold as you can get with a fully warm transmission.

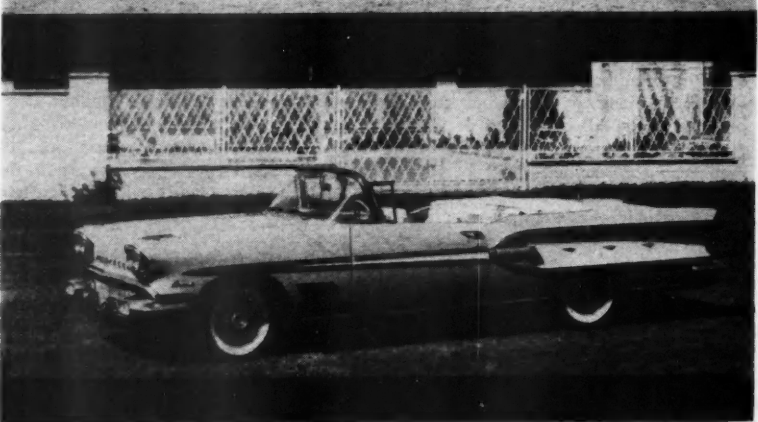
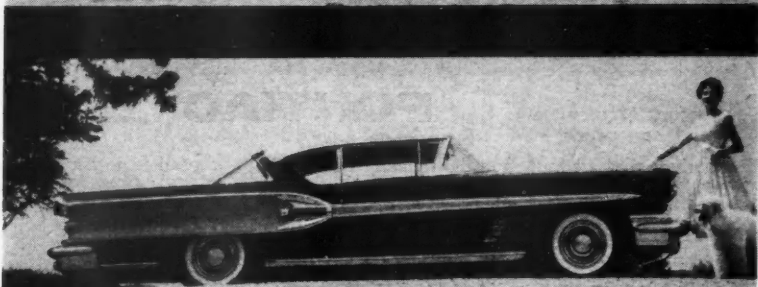
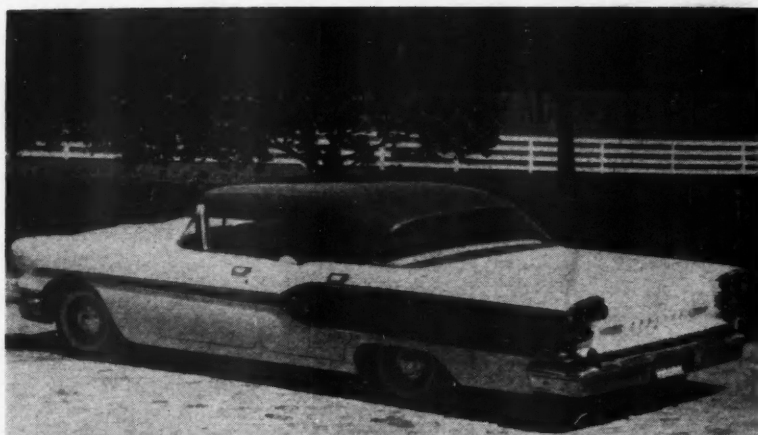
Torque to the differential is delivered by a brand new three-joint propeller shaft, with the middle "U" a ball bearing assembly held in an adjustable butyl rubber ring. The center "U" also contains a slip joint on the spline shaft with one blind spline to insure proper indexing. This is doubly important as the entire shaft is balanced at both ends and at the center when assembled to assure minimum vibration. The floor hump was reduced slightly when propeller shaft tubes were reduced in diameter from three to 2 1/4 inches; at the same time metal thickness was increased almost a third. A cardboard liner was added inside each tube to reduce noises telescoped through the propeller shaft.

The frame is a tubular center X-frame somewhat like that used under the '57 Caddy. Length of the center tubular section is changed to match requirements of the 122- and 124-inch wheelbase models. Modification created six different frames to match various body styles. Rubber cushions separate the body and frame at 14 or more mounting points.

Ball joint front suspension is new under Pontiac this year with the usual fewer lubrication points and anti-dive geometry common to other designs. Unusual are one-piece wheel spindle and steering knuckle forgings on which brake wheel cylinders are mounted to relieve the backing plate of all braking stresses.

Pontiac describes its rear suspension as "a basic four-link suspension with rear axle upper and lower control arms forming the four links." Two lower control arms connect from brackets below the axle near each wheel to a forward frame member. The arms are torsion rubber bushed at each end (threaded steel on coil spring jobs) and require no lubrication. The upper rear control arm of the system is called an "A" frame (because of its shape) and has as its main purpose the control of axle windup. On assembly the "A" is upside down with its pointed head tied to the rear of the differential housing. Legs of the "A" project upward then bend for-

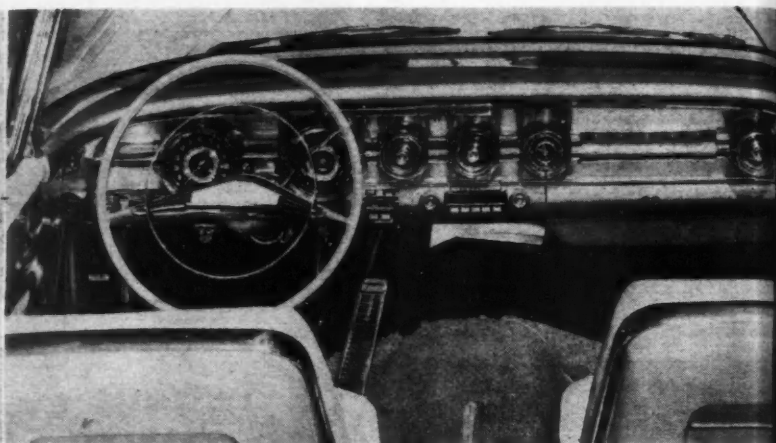
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PONTIAC'S Super Chief; Bonneville (coupe and convertible); Star Chief wagon.



first
feel
behind
the
wheel



PONTIAC continued

ward where they are bushed to the frame. Wheel hop under full power or sudden braking has been practically eliminated; the Pontiac feels glued to the ground at the same time it is hustling from zero to 95 in the quarter-mile.

An option most of us flipped for is Pontiac's Air-Ride suspension. Height is controlled by one air pressure regulator in front, and one on each side near the rear air cylinders. Controlled by links to suspension members, regulators keep the car level under all conditions of loading. A pleasant by-product of careful chassis engineering is retained road clearance on all models and controlled body height of the Air-Ride jobs. Pontiac owners with steep driveway ramps and Air-Ride need only to pull an "override" button from the dash. In a moment the rear silently rises a full five inches to raise its feathers from the wettest gutter. Trouble with high curbs and low doors will cease to exist if you wait a moment longer 'til both ends reach

maximum lift of a full 11 inches clearance at the siderail. That should be lift enough to clear any curb we've seen.

Brakes draw 55.9 per cent of their effectiveness from 12-inch front drums, the rest from 11-inch drums in the rear. Riveted lining is operated by enlarged brake wheel cylinders that reduce pedal effort by 12.7 per cent, as compared to last year. Vacuum power brakes have both a reserve tank and a mammoth 14 square inches of brake pedal you couldn't miss in a bushel of pillows. Clutch and brake pedals are suspended by nylon bushings which require no drippy lubrication. Even the throttle linkage is nylon bushed to reduce effort and noise transfer. A foot-operated parking brake operates the rear brake shoes through steel cables.

What's new with Pontiac includes listing the series relationship. Both Bonneville's are expensive comfortable bombs on the 122-inch chassis; four Star Chief models cost less for a longer (124-inch)

wheelbase sporting most of the Bonneville's transportation package. Three Super Chief body styles cost even less while seven Chieftains on a 122-inch wheelbase are highly competitive with the "low-priced three." The entire line is three inches lower from roof to ground than '57s, two inches wider, eight inches longer and with a hood one inch lower. New windshields are 48 to 85 square inches larger with critical lower corners and side areas swept back to reveal slow moving pedestrians.

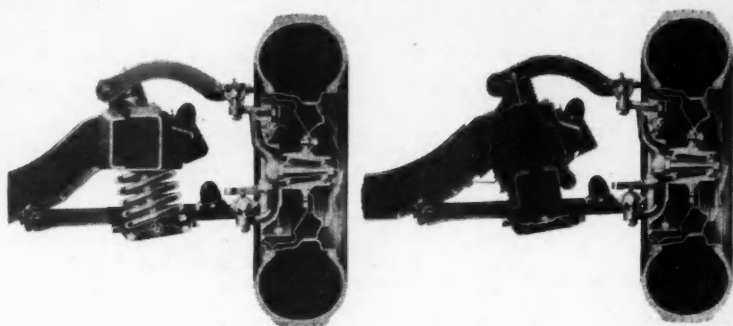
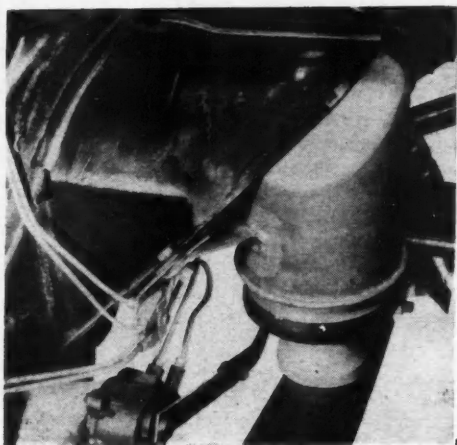
Starting a Pontiac with the key is easy. Just turn it. But without a key you'll have all sorts of trouble as the connection body of the ignition switch has been modified for greater theft protection.

Driving the cars disclosed differences far beyond the usual change of name and chrome. The booming Bonneville sport coupe (there's also a convertible) has an interior designed to present a cockpit-like appearance to driver and passenger resting on individual bucket-type seats. The dash

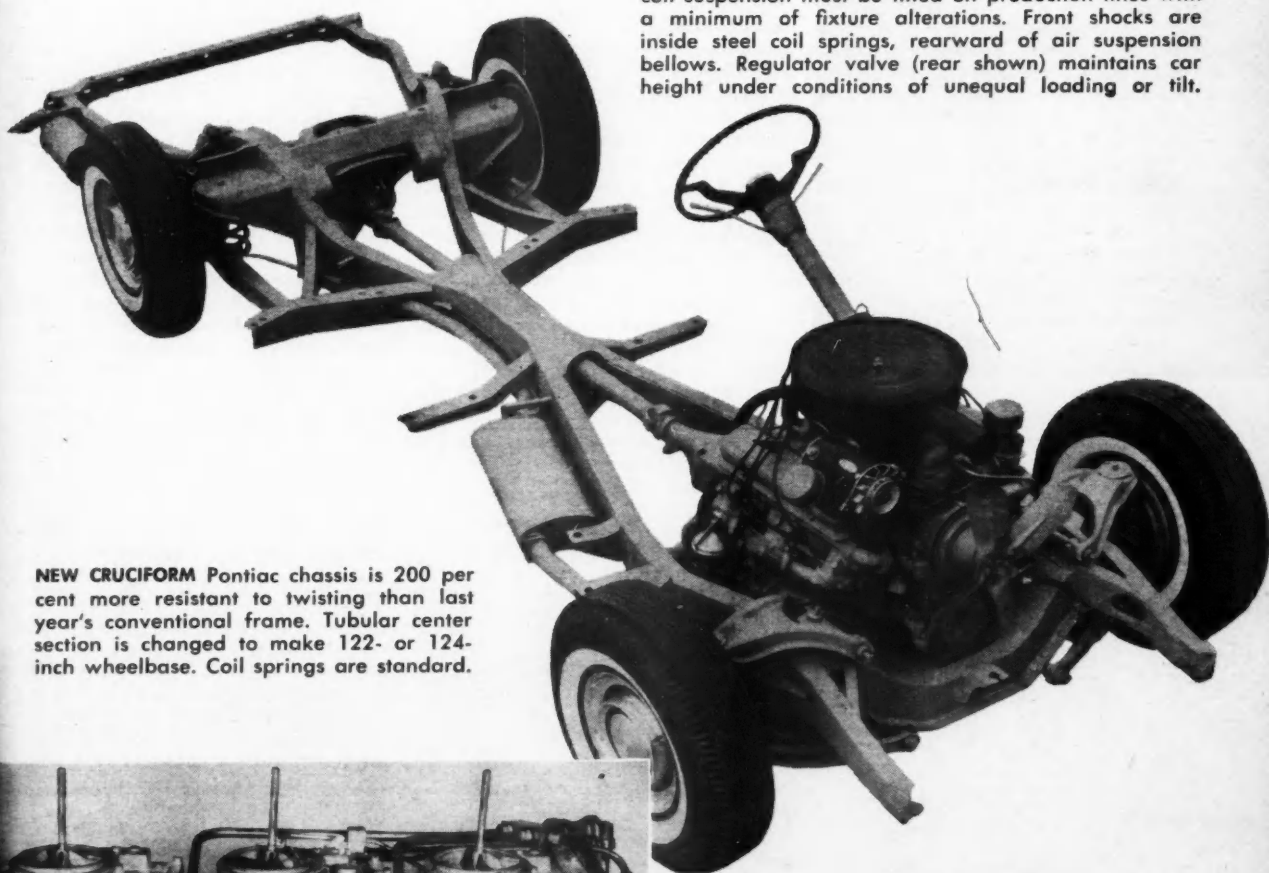
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AIR SUSPENSION COMPARISON shows sedan missing front trim at normal road clearance; air raised other to 11 in.

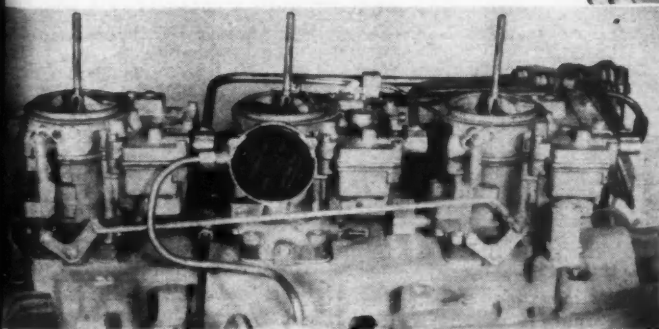




CHASSIS ENGINEERS shrewdly kept in mind that air and coil suspension must be fitted on production lines with a minimum of fixture alterations. Front shocks are inside steel coil springs, rearward of air suspension bellows. Regulator valve (rear shown) maintains car height under conditions of unequal loading or tilt.



NEW CRUCIFORM Pontiac chassis is 200 per cent more resistant to twisting than last year's conventional frame. Tubular center section is changed to make 122- or 124-inch wheelbase. Coil springs are standard.



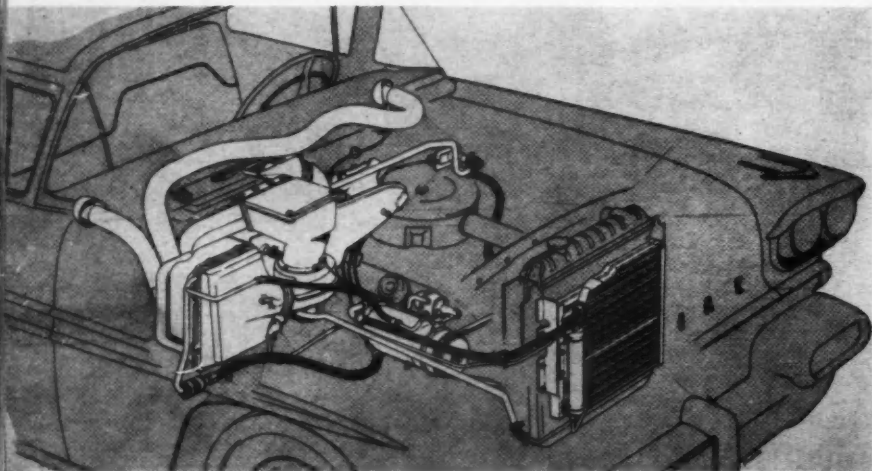
FOUR BASIC ENGINES and two special engines, all with increased displacement for improved performance, are offered in '58 Pontiacs. Fuel injection is optional on Hydra-Matic equipped models. Buyer can obtain four-barrel carburetion in models for which two-barrels are specified, at extra cost.



PONTIAC continued



"SPORTABLE" transistor radio pulls from dash when glove box latch is released. Tiny batteries give 50 hours of playing when out of car.



FRONT-MOUNTED air conditioning system is combined with heater to provide year-round climate control in car. New outlets have been designed for better flow of conditioned air to all sections of passenger compartment. Heater is dash-mounted, replacing former underseat type. Air conditioning is optional.

even has a padded handrail for nervous nurses . . . and other passengers. A four-throat carburetor is standard but three two-throats or fuel injection may be ordered as optional equipment. For a big car it handled lightly, with a 310-hp fuel injection V8 providing plenty of scat.

Less expensive than a Bonneville is Pontiac's 124-inch-wheelbase Star Chief series that includes station wagons and hardtops. We drove a four-door hardtop with Air-Ride over the roughest roads GM's proving grounds have to offer. Body weave was non-existent even on the famous "Belgian Block" test road used to torture experimental cars. After axle-thudding dips the well-loaded (four passengers) sedan refused to wallow and leveled off without unnecessary wheel correction. A more quiet ride and improved stability on gravel roads verified the value of air as a suspension medium.

Still less expensive on the long 124-inch wheelbase is a Super Chief series available as a four-door sedan or two- or four-door hardtop. Its lower compression engine

uses regular grades of fuel through a two-throat carburetor. Loop twist carpet is underfoot, there's only one ashtray in an instrument panel shared with the lower priced Chieftain, and less chrome decorates the body and simple hubcaps cover wheel nuts. The car we drove in this series had a Hydra-Matic transmission and coil spring suspension. Simulated traffic-emergency panic stops showed that every tire clawed concrete equally though the steering wheel was hard over as the brake pedal was floored. Washboard roads were not only smoothed but the hardtop refused to feel ice-like even though swung from side to side with reckless abandon.

Lowest priced of Pontiac's '58 lineup is the Chieftain. All seven models (station wagons, a convertible, sedans and sport coupes) ride on a 122-inch wheelbase. If you're interested, there's a definite difference between the 122 and 124's on rough roads, less difference on pavement. All Pontiac bodies have the same interior dimensions, but the Chieftains lose two inches of trunk length to fit their shorter frame. This series is floored with vinyl matted rubber, has less detailed chrome, only three stars on the quarter panels and one ashtray in the dash. When compared with its big brother you may notice the previously mentioned less satisfactory ride and a higher noise level resulting from cost-cutting limited use of sound-deadening materials. We rode in a gorgeous little pink convertible, a four-door sedan and drove a black Police Special with stiffened suspension. Ail had plenty of room both front and rear for long legs and a windshield that offered good visibility.

War drums are echoing in Pontiac's wigwam as everyone from General Manager Knudsen to apprentice janitor Schultz prepares to push Pontiac up the totem pole to fifth place in U.S. car sales. If the samples we've driven are any indication, they're making mighty powerful medicine on the assembly line—medicine which might well set a new high in driver acceptance of their "new-from-the-wheels-up" 1958 Pontiac. /MT

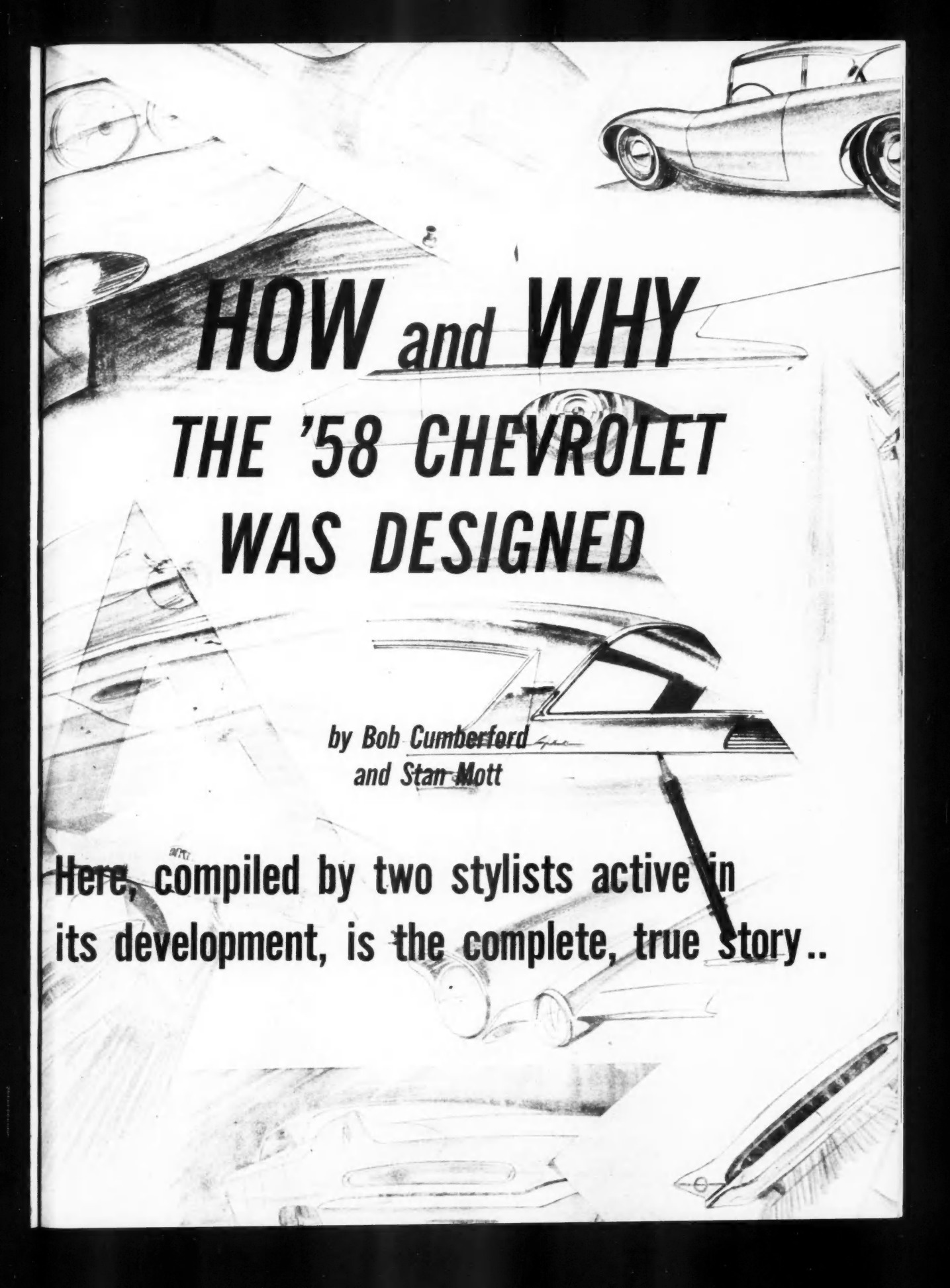
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HOW and WHY **THE '58 CHEVROLET** **WAS DESIGNED**

*by Bob Cumberford
and Stan Mott*

Here, compiled by two stylists active in
its development, is the complete, true story..

"When the '58 CHEVROLET styling program started, nothing was too weird to try . . ."

JUNE 21, 1955 . . . It's the longest day of the year, and Detroit is enjoying unusually fine weather. In the General Motors Research Building on Milwaukee St., a small group of men sit in a windowless conference room, oblivious to the weather. Their minds are far away — 2½ years away. This is a very select group. Headed by Clare MacKichan, chief designer of Chevrolet, it includes the head stylists of Pontiac Studio and General Motors Advanced Body Design Studios Number One, Two and Five. Theirs is an important purpose: to decide what sort of car you will be buying in 1958. Their discussion will help determine the basic dimensions of the proposed new "A" series body shell, shared by GM's Chevrolet and Pontiac divisions. Once these are set, GM Styling's creative machinery can swing into action.

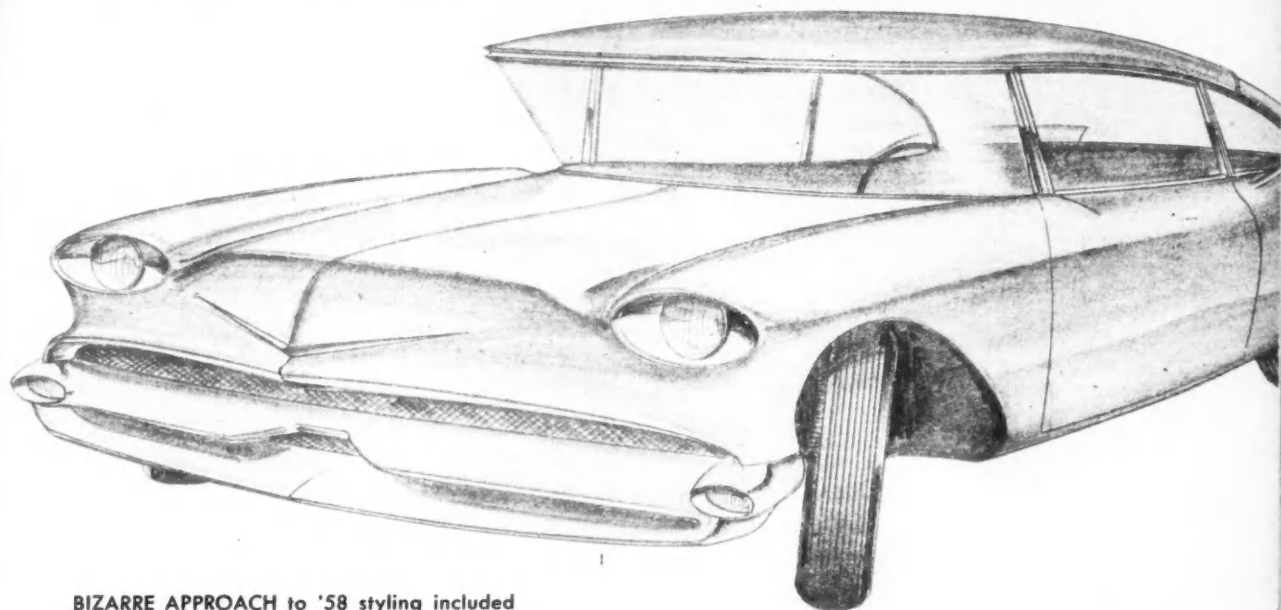
JULY 13, 1955 . . . In the Chevrolet Studio, the design staff is celebrating, for on the previous day top management accepted the final 1957 design. Now the way is clear for concentrated work on the '58. Up to this time, the more than anxious stylists have been sketching wild "blue sky" proposals. Now full-sized line drawings are made to pin down ideas for serious consideration. In the other studios, too, work is going forward rapidly. Two-man teams are working on each design proposal, preparing full-size airbrushed renderings. They will present their work in competition with the designs of the other groups. To ensure a fair showing, all are to use the same rendering techniques, and all are limited to the same basic seating layout and dimensions. Wheelbase, entrance conditions, overhangs and heights are to be the same for all 11 cars.

JULY 20, 1955 . . . Two programs face the stylists in the Chevrolet Studio, the 1958 A, and the 1956 Motorama show car. In order to reduce the workload, the XP-100 show car's basic layout had been developed in Advanced Body Design Studio Number One. Once it was approved, the design was turned over to Chevrolet for detailing and modeling. Jerry Cumbus, crack Studio One stylist, had been chiefly responsible for the car. Striving to obtain the longest possible hood within the confines of the package limitations, he had proposed a radically different windshield, spherical in form, with a round number one pillar. This was almost immediately adopted by the majority of the individual stylists in their sketches for the A body.

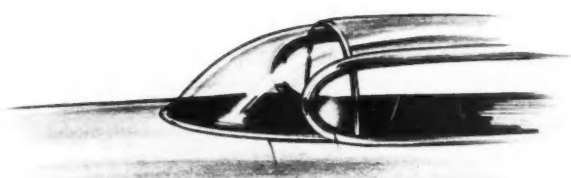
AUGUST 10, 1955 . . . The XP-100 has been named the Corvette Impala, a name derived from the fleet African antelope that so delights travelogue photographers and viewers with its long, graceful, fleet and unbelievable leaps. The spherical glass has been modeled, then cast in plaster to be sent to Libby-Owens-Ford's experimental labs. It has been decided not to show this windshield configuration at the Motorama, to keep it quiet for 1958 introduction, so the 1955 Biscayne Motorama windshield is being adapted. The rest of the car has been changed from the original proposal into a fairly close copy of the Chia-bodied Fiat coupe seen by management at the Turin and Paris automobile shows. This car is being rushed to completion so that it can be cast in plaster for the final Fiberglass molds prior to Styling's move to its nearly completed quarters at the General Motors Technical Center, scheduled for September 15.

GHIA'S FIAT COUPE design offered various styling ideas for "borrowing."



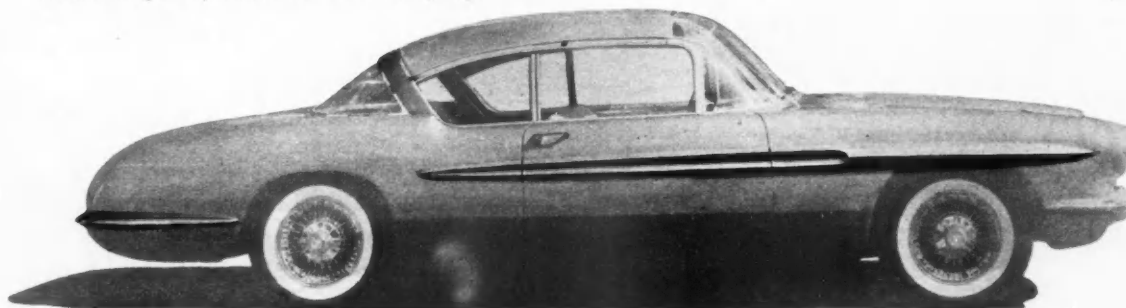


BIZARRE APPROACH to '58 styling included this concept of reverse-angled windshield allied with conventional sheet metal. An elliptical headlight housing preceded duals.



SPHERICAL WINDSHIELD from XP-100 had to be discarded for production reasons.

CORVETTE IMPALA show car's side spear, rear quarter panel and wrap-around bumper treatment greatly influenced the '58 styling.



SEPTEMBER 18, 1955 . . . Studio staffs are beginning to adjust to their new surroundings and concentrate on the programs at hand. Chevrolet in particular is finding it necessary to buckle down, even with the show car out of the way. Not only does the 1958 require attention, the Corvette has to be facelifted for 1957, and an all-new Corvette designed for 1958. In the Advanced Body Design Studios, three clay models — two Chevrolets and one Pontiac — are being started. The key model is in Studio One. For a start, it is given the main characteristics of the Impala. As the clay model takes shape, variations in minor details are tried, but the car remains basically the same.

SEPTEMBER 29, 1955 . . . Word comes through from the glass company laboratory that the spherical windshield cannot economically be manufactured in the quantity required for production. The XP-100 is already in the shops, so it is too late to put the design into the Motorama. The '58 is changed to accept a normal, but extremely raked wrap-around windshield. The end result is anything but good, and none of the stylists really like it at all. Although this is the primary car, efforts are constantly being made in three other studios.

[The General Motors system in automobile styling involves the use of several more or less isolated groups working independently on the same problem, with liaison between them the responsibility

continued

THIS FRONT END, considered until early in 1957, reached the Fiberglas prototype stage but was discarded for cost reasons.

of a few executives and an ambiguous "design committee." Ideas may be picked up in one studio for use in another, and often a design that management rejects for one car will be introduced in another studio for an entirely different make of car. This practice is generally quite confusing to the sketching stylists, but seems to achieve the desired results. In any case, it ensures that every design has "the GM look."]

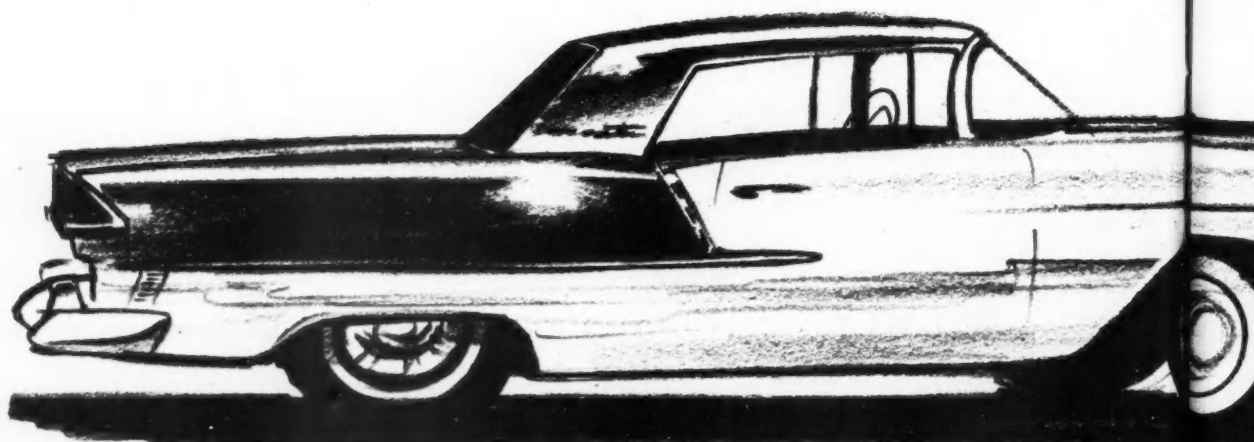
OCTOBER 28, 1955 . . . In Studio Two a typical quick sketch is drawn and hung on one of the display boards. It is not particularly outstanding in the mass of such drawings, but, unlike most, this one has a future. It goes unnoticed for several days, then attracts the interested attention of Harley Earl, V.P. in charge of the Styling Staff.

A stylist walks into the Chevrolet Studio. "Hey, guess what? The 'old man' finally saw something he liked. They're changing the rear end down in One."

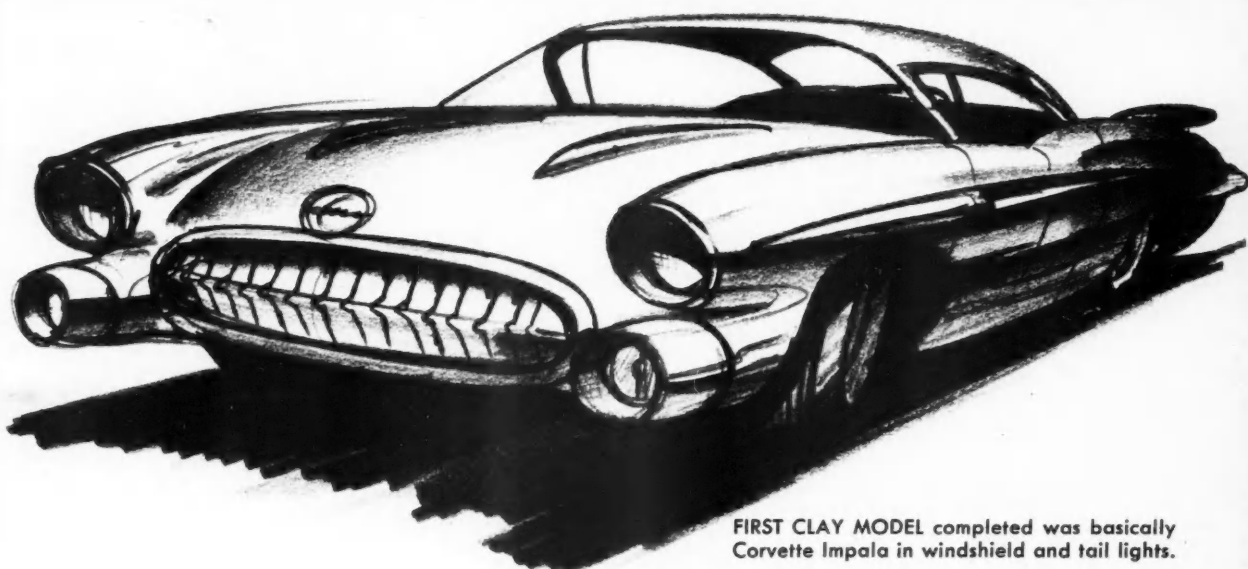
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**"At this stage, certain of the fairly in
of the '58 CHEVROLET are pretty w**

NOVEMBER 14, 1955 . . . When the breakthrough finally came, it started a series of new design trends. The past two weeks have been hectic as literally hundreds of ideas have been proposed, accepted, rejected, changed, tried in clay, modeled in wood, drawn full size, and drawn on tiny scraps. While the exterior is being worked out in uncountable variations, the interior stylists are by no means standing idly by, watching the furor. They've got a myriad of their own problems. Every day sees new changes in the roof line, forcing changes in figuring headroom, and changes in the chassis, forcing changes in seats. Ed Donald-



EXECUTIVE COUPE was originally proposed for 1955 line, but the idea was shelved. Slightly revised, style inspired the '58 Impala.



FIRST CLAY MODEL completed was basically Corvette Impala in windshield and tail lights.

...ly important details
...ty well established..."

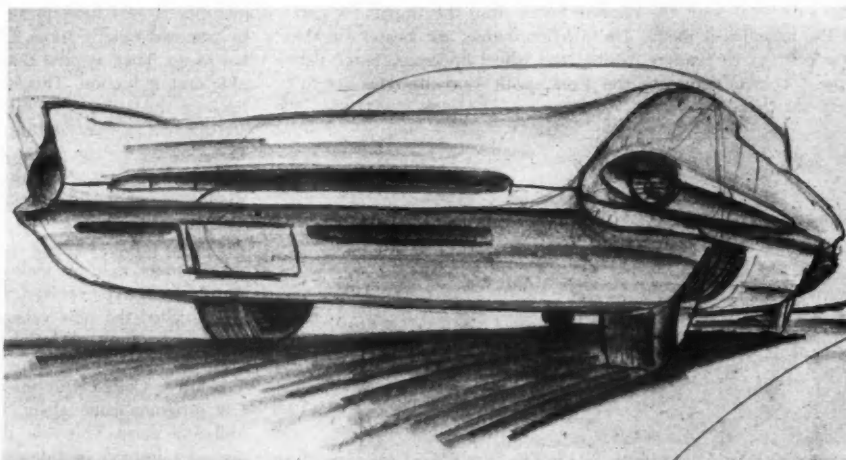
son, the youthful chief interior stylist for Chevrolet, dreams at night of being trapped in the back seat of a 1958 Chevy as the roof slowly descends toward the inexorably rising floor.

DECEMBER 21, 1955 . . . The rear end design theme established in October has withstood repeated attempts to supplant it, and the front end has been altered to improve the overall relationships. The basic Corvette grille, too narrow in the highly competitive "bigger is better" market, is gone. In its place, a straightforward evolutionary design, derived from the as-yet-unreleased 1957 car,

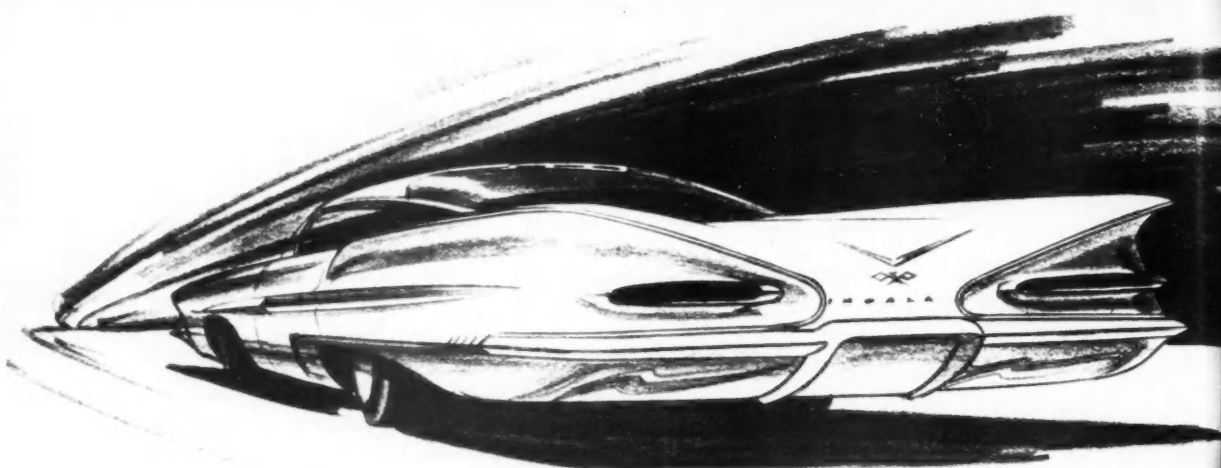
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CENTER FIN, popular GM test style idea, was adapted for Impala from the Daytona record Corvette design.



ORIGINAL QUICK SKETCH of rear fender wing design caught eye of Styling Chief Harley Earl, set the rear end theme.



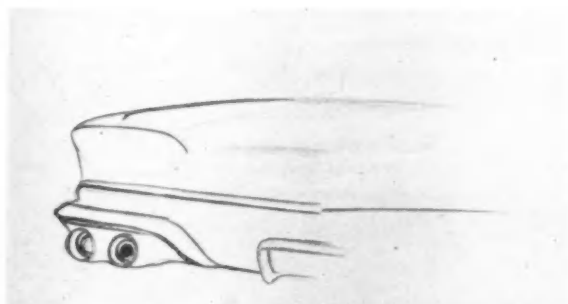
IMPALA CONJECTURE shows bumper, flared wing, tail light treatment that could have added distinctive air.

According to the author-stylists, "There is no reason why the Impala could not have had a different rear bumper from the sedan, giving a more delicate appearance . . . and it could have been accentuated by higher, flared wings and flush tail lights."

continued

is being tried. Since it has been known in the industry for some time that dual 5½-inch headlights will be legal in all states for 1958, these have been taken bodily, in the form of directly cast plaster models, from the Cadillac Eldorado Brougham. The Chevrolet's front fenders are still slightly below hood level, but give an appearance of extreme length.

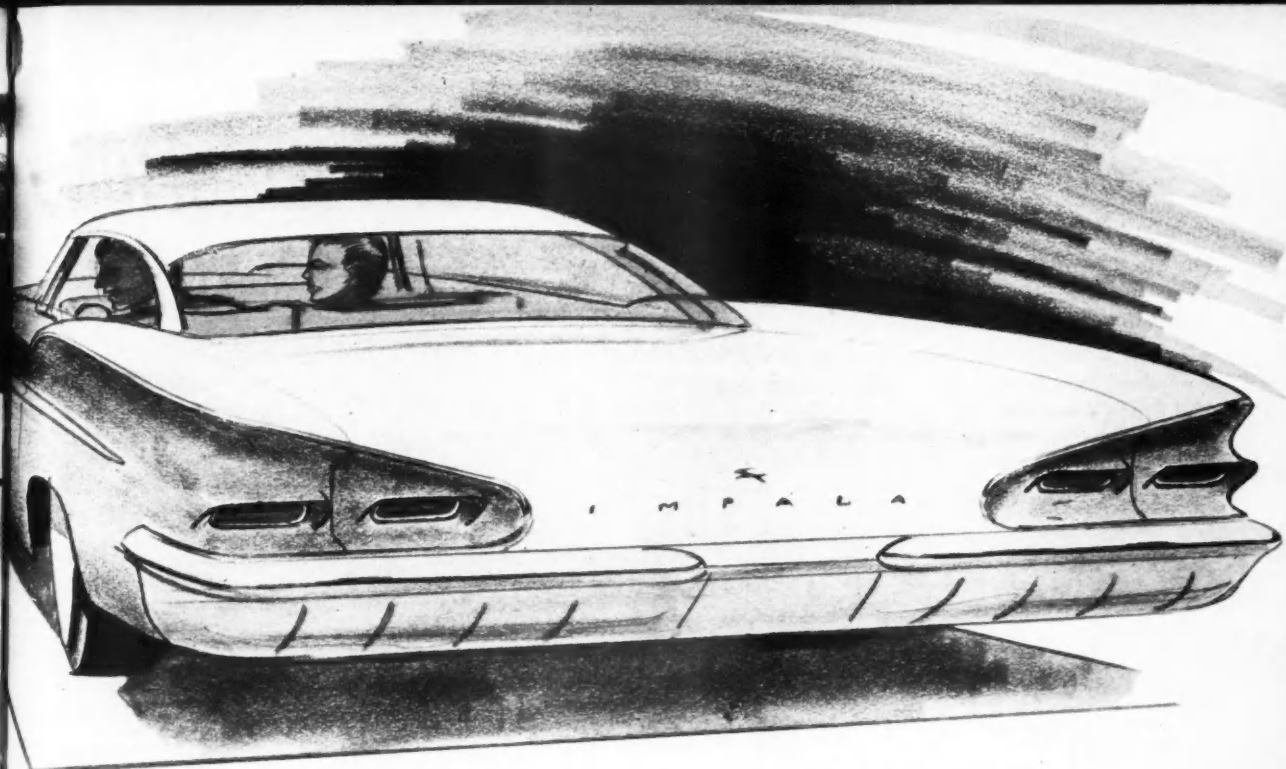
At this stage, certain of the fairly important details are pretty well established. The bumpers are blade-like and very graceful. The side treatment, the chrome boom from the Impala, is part of the basic sheet metal. The exhaust outlets are located on the side of the rear fenders, behind the wheel openings. Huge flat-tipped bombs dominate the front, with Corvette-type "teeth" between them.



PROPOSED FRONT END shows strong influence of '56 grille that was stylish, popular, and economical to make.

JANUARY 3, 1956 . . . In order to accurately visualize the completed design, a number of finely detailed prototype cars are made up in the Styling Section shops. Unlike the production prototypes made by the engineering groups, these cars do not run at all. They are constructed of Fiberglas, with all chrome trim being solid brass castings. In every respect, visually, these are accurate representations of a production car, and as such are carefully studied by stylists, division management, and corporate management. Among the most interested observers are the Chevrolet cost analysts. These men, whose uncanny ability to judge to the hundredth of a cent how much a given car will cost in any quantity is so important to any large scale manufacturer, came to look and quietly shook their heads. Too expensive. Something has to go. They suggest that the front end could afford considerable cost reduction. This is not an entirely unwelcome thought, because the 1956 is selling fantastically well, and a number of stylists are convinced that it would be a commercially sound move to follow the style of very wide, very shiny grille. Even though this is not at all a unanimous idea, work is begun immediately on what will ultimately be the 1958 Chevrolet.

FEBRUARY 13, 1956 . . . Back in 1954, Styling had proposed a new body style for inclusion in the 1955 line. Actually, it was an old body type revived, being an opera coupe in seating plan. They called the new version the Bel Air Executive Coupe, and it seemed to be a potential best seller. Then management stepped in. "No Executive Coupe," they decreed, and there was no Executive Coupe. But the idea wasn't forgotten, and when the '58 program came along, it was brought out again, in slightly different guise. This time the plan calls for the rear seats to face forward instead of sideways, and although it is to be a close coupled affair, the upper structure will be neither so short nor so severe in profile.



VARIATION OF THE THEME of flared wings produced this high-fender, depressed-deck and long-low look.

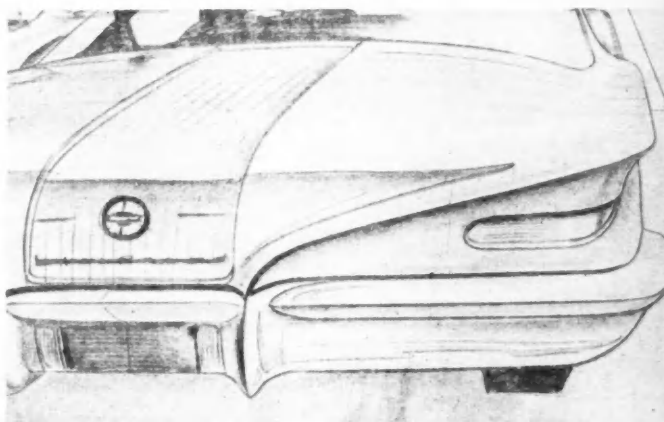
Only a few days ago Zora Arkus-Duntov had broken the United States record for sports cars in a Corvette that Styling had prepared, and enthusiasm is running high. As usually happens in such cases, some of the stylists incorporated the essence of the achievement in their sketches. The way they did it was to put the most obvious feature of Duntov's car, the prominent fin, on the '58. Whatever the reason, the center fin seems to find its way onto every car GM does at some point in its styling development, but only on the Firebirds and Pontiac's Club de Mer show car has it reached the public in any form.

On the model, the fin is tried along with a center pillar in the backlight, but both are discarded with popular approval almost immediately. One touch that is well received is the addition of a Mercedes 300-SL type of air outlet vent in the top just above the window.

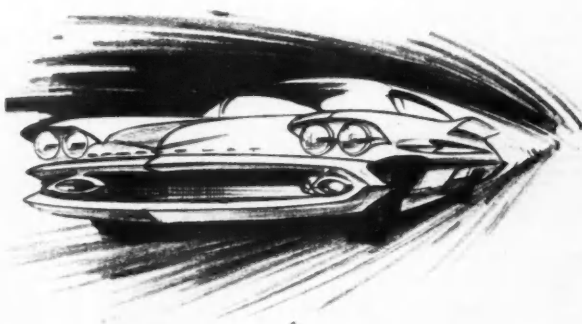
MARCH 24, 1956 . . . The form the Impala will finally assume is pretty clear at this point. Front end sheet metal will be the same as the regular car. The rear deck is all new, with the wings coming much closer together in back. Both the coupe and convertible are four-passenger cars, even though they will be advertised as five-passenger. Air outlets for the engine compartment were borrowed from the Corvette. At first, they were on the front fenders, and were functional. Now they are in front of the rear wheels, and are dummy inlets. They are chrome by necessity more than by choice. DuPont's new Plexiglas paint requires heat to set, and any die cast parts will melt at the temperatures involved.

APRIL 16, 1956 . . . The entire front end, exclusive of sheet metal, has been changed. With the 1956 design as a basic guide, a new grille, incorporating the wide, low characteristic, has been adopted. Four parking lamps are used, two in each corner of the grille, slung in die cast housings styled from the Boeing B-47's inboard jet-pod nacelles. The same lenses are used for backup lights and, with red plastic, for tail lights. The lens is that used in the 1956 Corvette.

continued



DEVIATION from approved flared wing approach is this suggestion of sharp horizontal fin lines, with rear deck represented as full, round form.



POSSIBLE RESTYLING of '56 basic design could have permitted "new look," authors claim, with "graceful approach, dropped hood, floating vee."

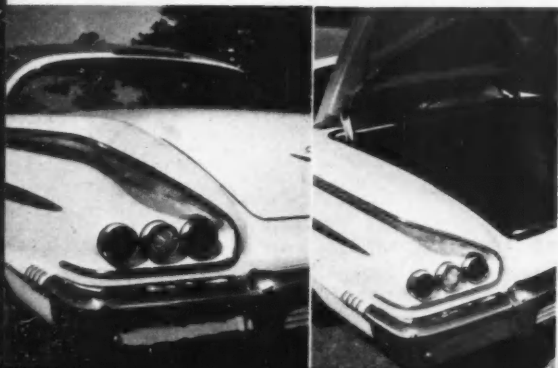
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IN MAY, 1956 . . . The '58 Chevrolet is done. For all practical purposes, the styling phase is complete. There will be minor items for consideration, but most of the stylists' efforts are being directed at the 1959 car. This is the most nerve-wracking part of all. One whole year of maximum output, and there's no way to know whether you've done an outstanding job or whether you've failed, totally, absolutely, and completely. What do *you* think? YOU are the only style critic whose opinion — backed with cold, hard cash — really counts.

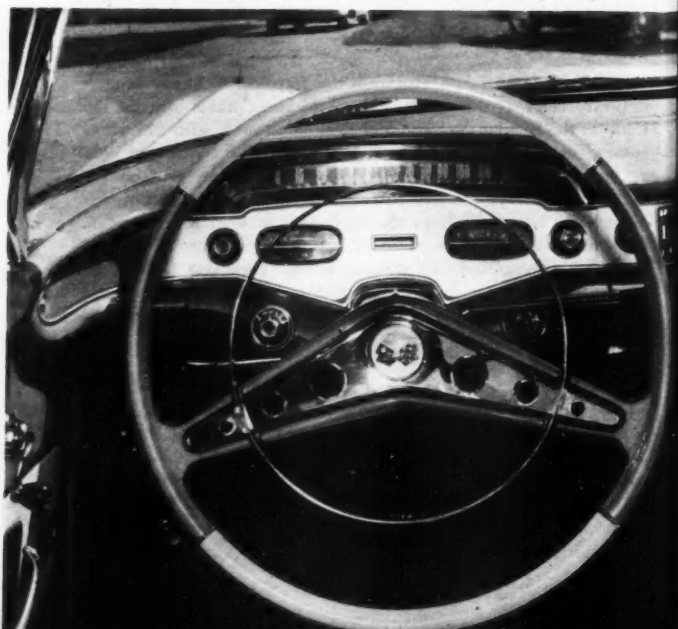
FIRST FEEL BEHIND



'58 IMPALA — with eight "eyes" in front, six in rear, simulated side scoop, borrowed boom and quarter panel — reflects the combination of influences that affect the design of a new car.



SIMULATED RACING WHEEL in Impala has typical lightning holes in spokes. Instrument readability is good.



ALC

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ND THE WHEEL

by Joe H. Wherry Detroit Editor



the '58 CHEVROLET

ALONG WITH THE BEL AIR SERIES, Chevrolet now has the Delray and Impala, plus several station wagons.

ALONG WITH the larger, and in some ways closely related, Pontiac, the popular Chevrolet is the newest thing out of General Motors. Fact is, Chevy is all new with the exception of the retention of last year's 283-cubic-inch V8 engine. But, they've done it again—a brand new engine with a whopping 348 cubic inches of throbbing displacement for those who want all kinds of power. In brief, everything is new! Space permits us the important points only.

First look at the outer adornment of the new Chevrolet—slated to retake first place in sales from Ford—discloses that this car is visibly larger in all dimensions except height: that's down well over two inches to 57.1 inches overall for most models while the Impala variant of the Bel Air stands a mere 55.7 inches high. The front looks familiar—the rear is completely different.

Bigger? Well this so-called *small* and *low-priced* car is now 209.1 inches long and 77.7 inches wide; that's a gain of 9.1 and 4.2 inches respectively. The wheelbase, too, is catching up to Ford and Plymouth

—117.5 inches between the axles where it was 115. The stance, or tread, now measures 58.8 inches front and rear, and this brings us to the all-new frame, designed expressly with the new optional air suspension in mind.

In '57 Cadillac burst forth with a wasp-waisted frame called, more properly, an "X" design. Basic consideration for the adoption of this same general type frame by Chevy has been to lower the passenger compartment—and the overall height—without necessitating a sacrifice in either interior space (legroom and headroom to be exact), ground clearance, or torsional strength. The interior is dressed up but familiar. Passenger space is much better except for middle passengers in either seat—they have tunnel problems. MT has stoutly maintained for many months that the '58 Chevy (and Pontiac too) would *not* have a tubular frame. In short the new frame is an all-welded structure with a rigidity factor about 30 per cent greater than the old frame with its parallel—or longitudinal—siderails. The front side members are husky channel sections to a

point just aft of the front suspension cross-member. At this position the channel sections blend integrally into rugged box-sections which angle together to form, with extra stiffening, a high-placed tunnel (which carries the drive shaft). From the central tube at the waist the side sections splay outward again, are kicked up fairly conventionally over the rear axle; the tail of the frame is composed of parallel side members connected by the box-sectioned rear crossmember.

Tests have proven that the X-frame has far greater resistance to road shock and twisting largely because of the extreme strength provided by the central box-section member. Those frames slated to hide beneath the sleek new Impala convertibles have steel plates welded to the bottom and top of the side members and center beam for the greater part of the frame length.

Chevrolet uses an interesting term that conjures up visions of the future, say 1960 or thereabouts. This term, *body-chassis integration*, apparently derives from the fact that the new underbodies are much stronger than formerly and so special body

continued on next page



Summing up '58 CHEVROLET'S suspension system, roll center is higher, center of gravity is lower, ride is softer, yet stability remains.

continued
mounts for the various models are no longer needed. Because the usual outboard siderails do not exist, the rocker panels are heavier and, in effect, become substitutes for the old siderails. Three structural crossmembers are secured to the underbody, principally at the rocker panels; the latter extend upward and forward all the way to the dash panel where they provide greater resistance to collision than ever before attained with a separate body shell. This shell, it virtually goes without saying, is entirely new and is shared, with certain minor differences, with Pontiac. The cowl is now double-walled, ventilation access is provided herein, and the plenum chamber is larger than in the old body. Actually the new body and frame are so united by 12 body and two sheet metal mounting positions, that Chevy now comes close to having an integrated structure. We suspect untized will show in a very few years.

Standard suspension remains ball joint and coil springs in front but with travel increased from the old seven to 8.5 inches vertical movement. Since the front tread is nearly an inch greater and because the steering knuckle angle of inclination has increased from 3.5 to seven degrees, high-speed cornering stability is much greater than heretofore with steel springs. A new torsional anti-sway bar is used also. Summed up—the roll center is a bit higher, the center of gravity is lower, the ride is softer, and yet the stability remains. Anti-dive qualities are improved, too, by increasing the angle between the upper and lower control arms to 10 degrees. Our test Bel Air four-door sedans nose-dived on panic stops less than any Chevy we've driven with conventional or air suspension.

In the rear end—still underneath—the new Chevy has what Europeans would call *trailing arms*. Arranged in what amount to two pairs of arms, the separate lower arms are set one to each side while the upper arms are actually a sort of horse-shoe shape. The lower arms anchor to the frame at their front ends while the combined upper arms—really a yoke—are attached to each side of the rear axle housing, at the rear of the yoke, and to the frame at the closed end of the yoke in

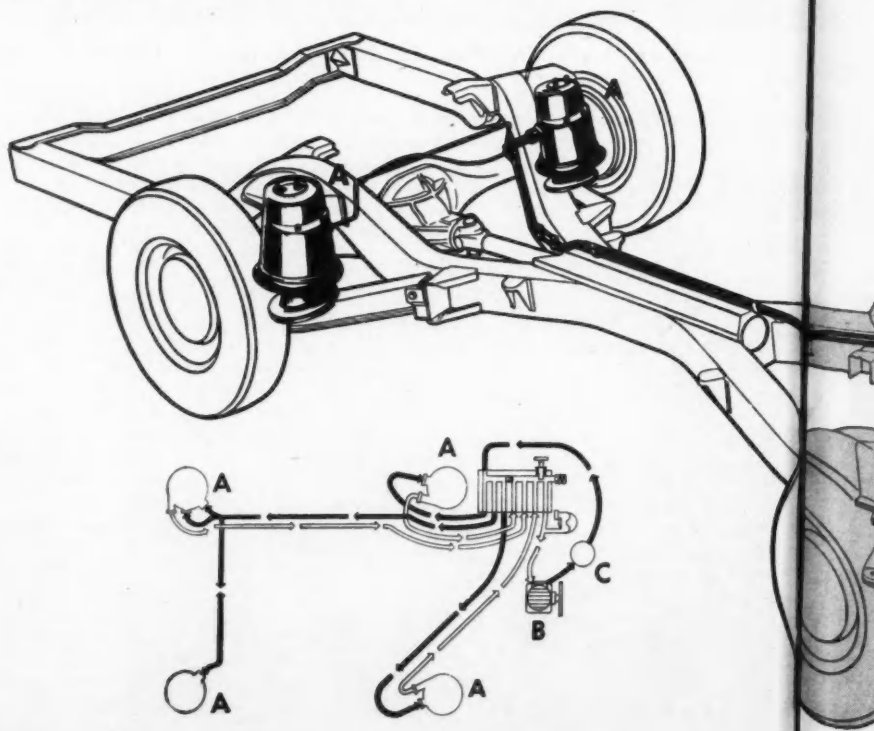
front. From this four-point mounting, Chevrolet (and Pontiac) derive the term, *four link*. Chevrolet engineers claim improved shock absorber action to be another of the benefits of the new rear suspension system.

We drove a conventional steel sprung car on the GMC proving ground and there is no doubt but what roadability under all conditions is greatly helped by the new chassis and suspension. The new air suspension, good as it is, may still take a back seat to the four coil springs for some time.

So what's the matter with Chevy's new air suspension? Nothing at all—it does

exactly what it's supposed to do—gives a feather-soft ride. Officially the new semi-closed system is called *Level-Air* and consists of air bags in place of coil springs. Three height-control valves are used but you'll search forever beneath a new air-bagged Chevy to find them. They are buried, in a unique way, inside the air spring reservoir domes: one in each front unit and one in the left-rear dome. The height-control valve actuating arm, in each dome so equipped, acts or reacts directly by contact with the top of the piston concerned. The high pressure air storage tank is mounted vertically at the left front of

CHEVROLET'S "LEVEL-AIR" suspension system consists of four bell-shaped rubber bellows (A) at wheels which automatically adjust when air pressures from compressor (B) are created by irregular road surfaces. Air reservoir (C) is mounted forward on chassis; junction block is installed close by.



the car inside the sheet metal. Adjacent to the tank is an air intake valve with a trap for harmful particles and an alcohol filter bottle to prevent icing. The many air lines are secured to the left side of the frame and the whole appearance is considerably less confusing than is any other current production system. Levelling is obtained by the same means, however. As in other systems, a brief time interval permits the usual fluctuations due to small road irregularities without continual change in the amount of air contained in any given air dome. Loading or unloading either in the form of passengers or luggage causes the system to go into action and the car regains normal level attitude within a few seconds.

On the proving grounds GMC has some of the flattest and cruellest curves imaginable; taking the air-suspended engineering prototype through these turns at various speeds was, frankly, a bit disappointing. It's necessary to say that handling, controllability, and overall roadability plus tendency to spin out when pushed are far more critical than with the steel-sprung car—which sticks like glue and corners remarkably level at speed. Furthermore, while the Chevrolet system is much cleaner and simpler than that of the Buick and Oldsmobile, this early trial car simply did not handle very well with *air*. Fast stops and

starts caused virtually no nose or tail dipping, but cornering roll seemed extreme—more pronounced, in fact, than on any other air suspension system driven.

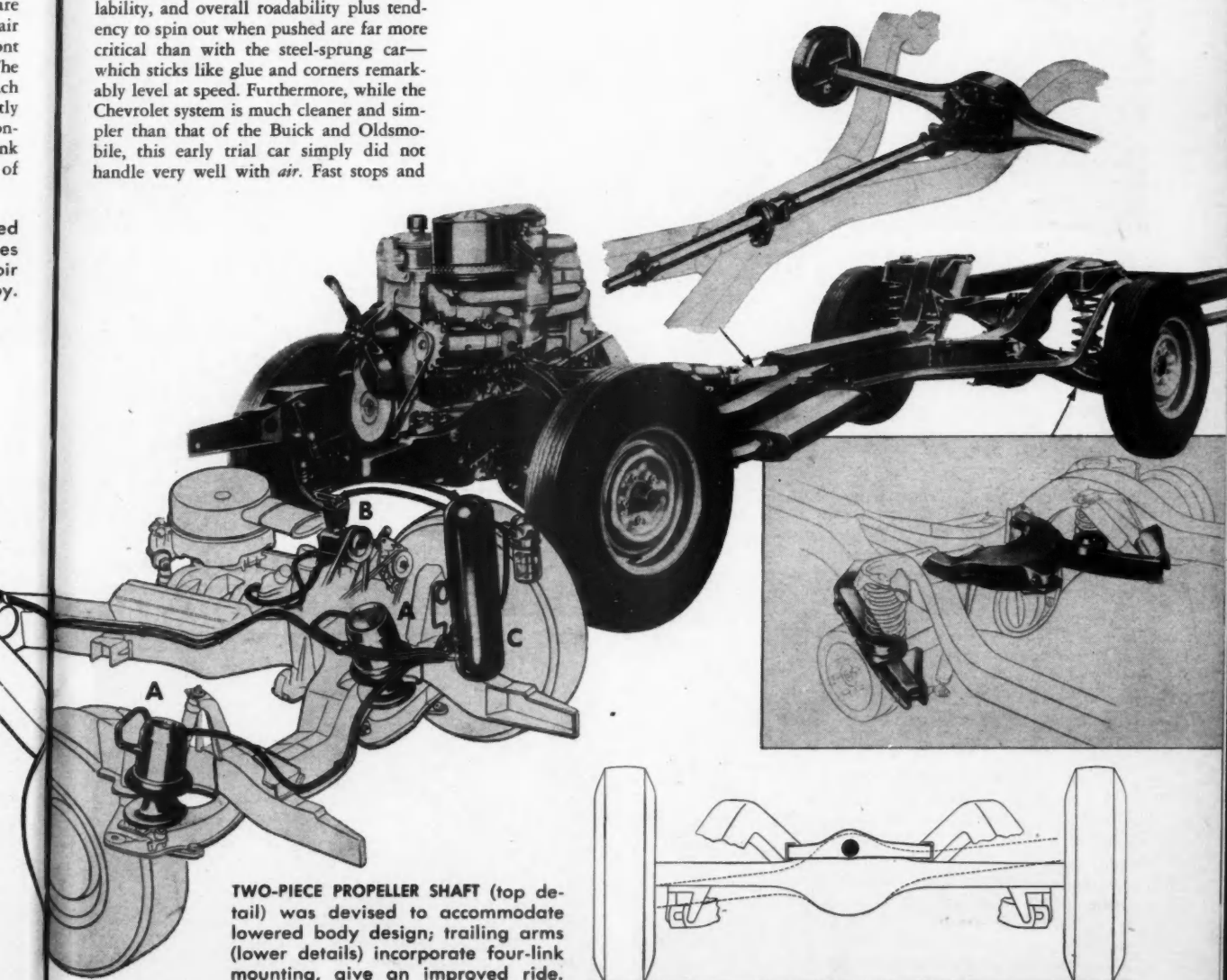
The air-sprung Bel Air checked was an engineering test car and, no doubt contained the usual 200-300 extra pounds of dead weight. The fact that such protos are invariably too heavy, with the extra weight in the wrong places, may explain the poor handling experienced. The brakes are much better due to new 11.5-inch drums. They took eight hard stops from 60 mph before fade was noticed.

In the performance department, the Bel Air had plenty, not quite as much as '57's hottest sample, but certainly enough considering the increased size and weight. Our test engine was the new and very compact 348-cubic-inch "W" engine which is named *Turbo-Thrust*. (The 283-cubic-inch engine is available; if you want fuel

injection, you'll have to buy it. Also economy buyers can have the venerable six-cylinder engine in all series.) The engineers call it the "W" because of the peculiar shape of the outside edge of the rocker covers. Engine swap enthusiasts may be interested in the overall dimensions of the bare engine: it's just 30.55 inches high, 26.08 wide and 30.1 inches long. You can reach the spark plugs now; the distributor sits high and dry at the back of the block, and all other usually fiddled-with components are equally accessible.

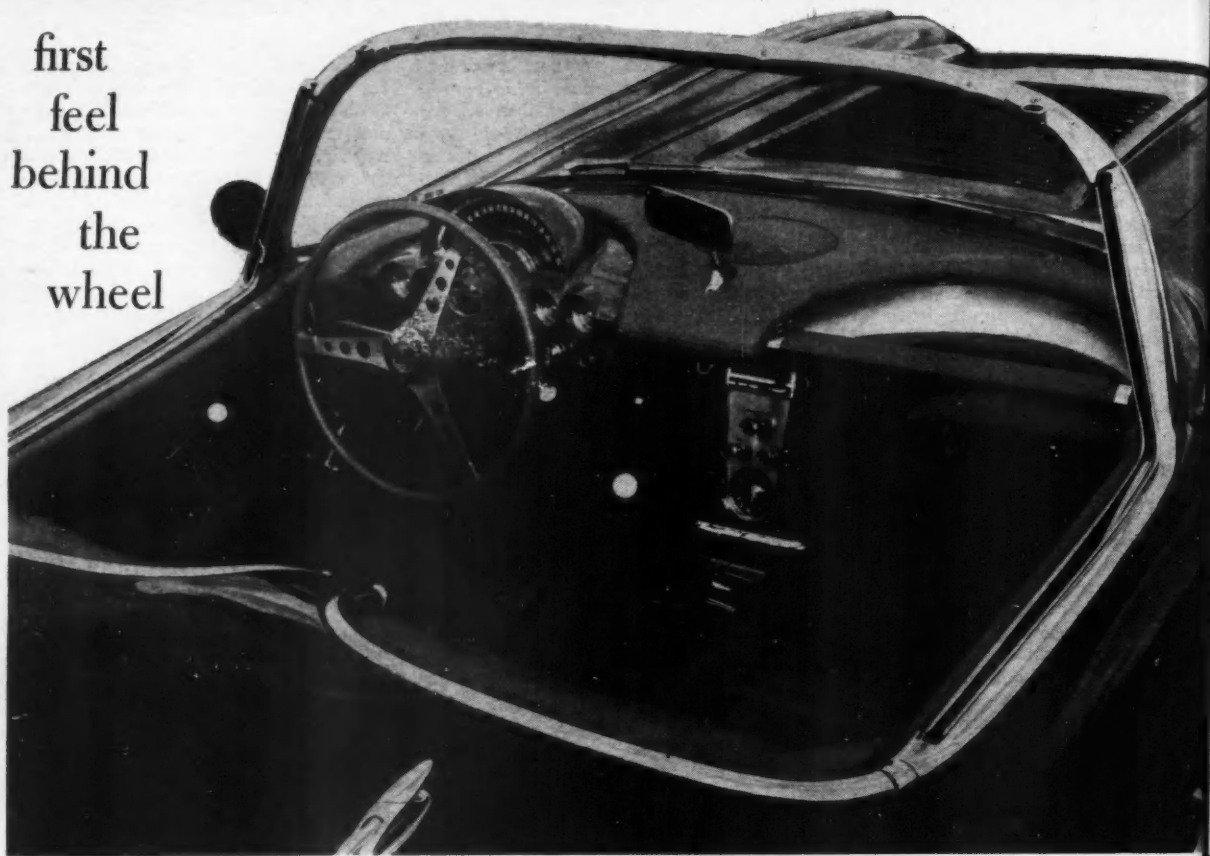
This engine is entirely new, has a bore of 4.125 and a stroke of 3.25 inches. The compression ratio is 9.5 to 1 and maximum output is 250 at 4400 rpm while the torque is 355 at 2800 rpm. The crankcase holds four quarts and lubrication is full pressure. After the early advent of the Edsel, the fact that the combustion chambers are cylindrical wedges formed by the

continued on page 67



TWO-PIECE PROPELLER SHAFT (top detail) was devised to accommodate lowered body design; trailing arms (lower details) incorporate four-link mounting, give an improved ride.

first
feel
behind
the
wheel

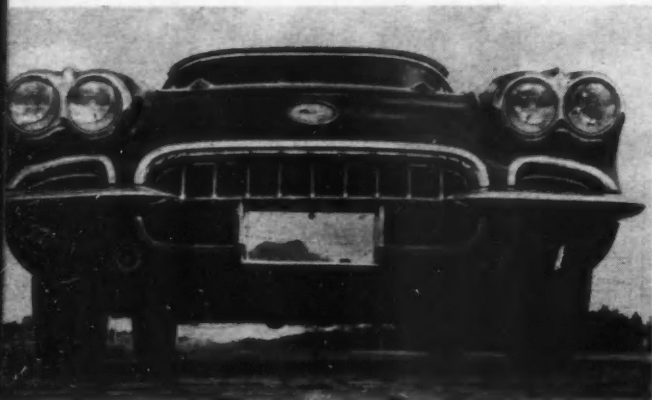


CORVETTE

"THE PLANT PROTECTION patrolman should be notified immediately when work is completed . . ." is the way one of the lines on the printed poop sheet used by General Motors Proving Ground reads. It means what it says for during the weeks just prior to new model announcements, security seems tighter than ever.

MT's first feel behind the wheel of the '58 Chevrolet Corvette took place under just such circumstances. Could have been the presence of several overseas GMC products. At any rate "our" Corvette was just the rig for the sports car enthusiast who likes to buy American. There was the optional close ratio four-speed all-synchronized stick-shifted gearbox that was as smooth as silk. The steering was unencumbered by power, had a not overly fast 3.7 turns lock-to-lock; the rear axle was the optional non-

STANDARD CORVETTE ENGINE is 283-cubic-inch powerhouse that fared real well in 1957 competition events. Optional is hot camshaft, fuel injection, 10.5 to 1 CR.



slip Positraction that's also available on the passenger sedans; the engine was fully run in and we were given our head to see if the '58 equals the very hot '57. It does!

Standard, in fact the only engine currently listed for the Corvette, is the familiar 283-cubic-inch powerhouse that beat up a lot of expensive competition on the domestic map last year. A compression ratio of 9.5 to 1 is standard with the equally standard single four-barrel carburetor. A hot competition camshaft is available optionally as is fuel injection or a duet of four-throat carburetors, and you can get 10.5 to 1 compression.

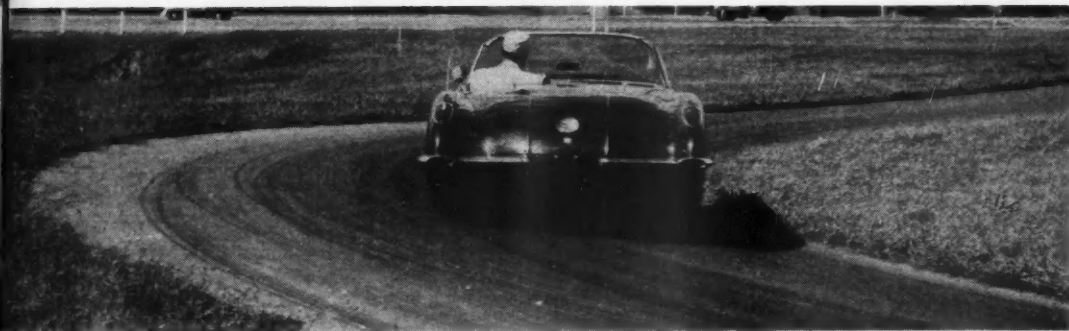
The standard transmission is a three-speed synchromesh unit. Overdrive is not to be available, but one can order Powerglide or about the same four-speed box that we enjoyed so much in the experimental finned Corvette (Sept. '57 MT).

There's no fin on the '58 model but that job proved to be fairly on the beam insofar as predicting the '58 is concerned. Boulevard drivers may be chagrined to learn that neither power steering nor power brakes will be available. Nor will those expecting something radical in the way of styling be happy—this car has been kept in line with the dreams of enthusiasts. The suspension is not changed, but there are really several important new features.

First off, one of the biggest gripe items has been completely revamped—the instrument panel is all new—the entire dash for that matter. Now the tachometer, redlined at 5600 rpm on our four-barrel "first feel" car, is now dead center ahead of the driver. Within the tach's face is a total rev counter; above the tach is the speedometer—large white numerals on a business-like black

continued on page 60

OPTIONAL BOLT-DOWN HARDTOP is available as is the power-operated rag top with its up-swinging rear deck.



PHOTOS BY JOE H. WHERRY



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BUICK

continued from page 27

dus rods are longer and detail changes have been made in the shock absorber mountings; the front shock control forces now are taken directly by the frame side-rails rather than in the front crossmembers as previously. The only other frame modification of note is that the siderails have been extended forward for better bumper bracket location, and to make room for the air system's high pressure tank.

Basic geometry is unchanged in front and the ball joints are retained. The new outboard location of the new, larger shock absorbers, however, is quite likely responsible for the improved handling with the air springs.

In the rear, Buick does not use the trailing link (called *four link*) seen on several other '58 cars; rather the entire air setup is much like the old coil springs but with a transverse stabilizer bar added behind the axle. One levelling valve is used in front, two in the rear. Beneath the dash to the right of the steering column is the control for the manual overriding valve which enables the driver to put the compressor to work in an emergency—then your Buick rises about four inches overall for a ground clearance of better than 10 inches. Thus, tire changing and negotiating rough terrain or high centers are facilitated. Buick engineers caution, however, against driving any distance in the elevated position—it's *rough* on the car's system as well as your own.

All new? No, but Buick for '58 is a good 70 per cent new, except for the engine, if you buy it with air bags. This new system made a new battery necessary to make room for the air compressor, a new exhaust tailpipe arrangement was required to clear all the air suspension plumbing in the rear, and some minor though important changes were made in the steering gear geometry. In the latter instance the tie rod pivot ball, where the steering arm attaches, was lowered and a new larger sectioned steering arm with a new knuckle is used for greater strength; in fact the steering arm attachment is now said to be 25 per cent stronger than in '57, principally by means of using larger bolts made of higher tensile strength alloy. The overall steering ratio is now 19.7 with power as against 19.6 in '57 and four full turns are still required lock-to-lock.

If new styling and superb riding ease will sell cars—and we tried the rear seat too—we predict a rosier '58 for Buick. That this division has decided to forego power increases is, in our book, commendable. It's a safer car, especially those models above the Special series with the much improved finned aluminum brake drums. You can still go like a scalded cat, you stop quicker, and you stay almost level at all times.

—Joe H. Wherry

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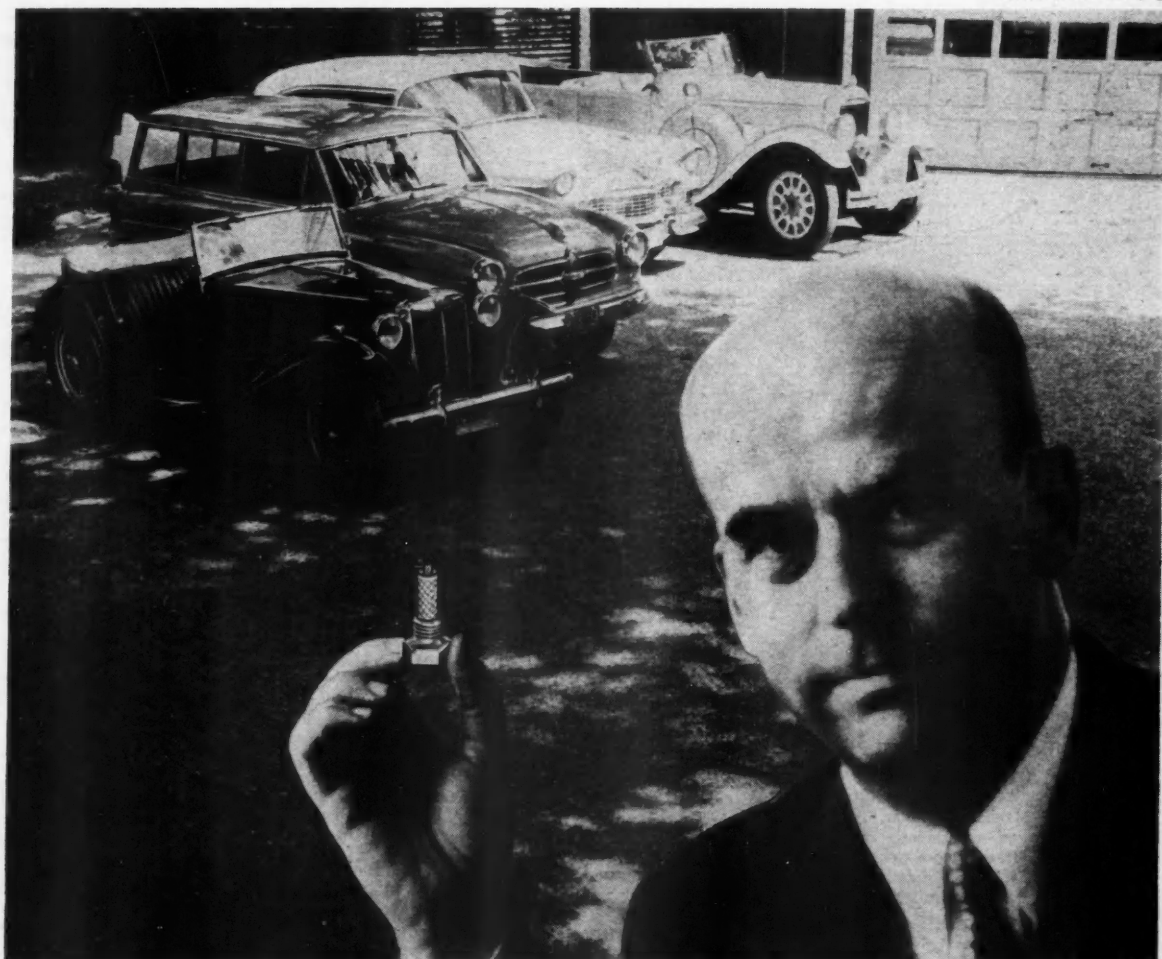
During the hectic early years of World War II, a brilliant young M. I. T. graduate named Win Johns was doing vital engine testing work for the U. S. Navy. One of the rigorous tests was designed to discover how long an engine could be run at 250° F. before it burned out. One engine was set up and run at 1800 for 50 hrs. But—at the end of that time, the engine showed no sign of burning out. Johns and his staff

tore the engine down and discovered, to their amazement, that there was little or no wear!

Discovers Principle

Johns reasoned that this test engine somehow was not being subjected to the factors that cause wear under normal operating conditions. It was found that since this engine was

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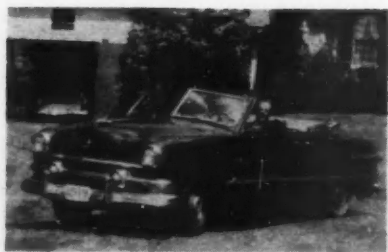




Original test car still performs with amazing power and smoothness—with 177,842 miles on it! Johns (above) had the pistons removed for inspection when the car registered 116,942 miles and there was practically no wear! Magna-Power helps any car—old or new—stay young, healthy and more powerful longer!



"T"-rifle 1920 Model T Ford was rebuilt by owner Seth Pancoast of Broomall, Pa. Magna-Power keeps oil cleaner and helps this beautiful antique start with "one pull of the crank," according to Pancoast. His '55 Ford Wagon was Magna-Powered at 3,500 mi. and now at 16,000 runs smoother than new. Pancoast writes, "I can truthfully say that your Magna-Powers are worth their weight in gold!"



Fabulous '51 Ford is shown here with owner Lucius Kingman of McLean, Va. Purchased new by Kingman—Magna-Power was installed in it after 15,000 miles—the car now registers over 90,000 miles. "It has more power now than when it was new," says Kingman. "The spark plugs last about 40,000 miles! Amazingly, it burns almost no oil—maybe a quart every 1,500 miles!"

MAGNA-POWER (continued)



Magna-Powered trio, owned by the Stout brothers, Arthur and Robert, of Plainfield, N. J., is made up of '56 Chev Bel-Aire Conv., '38 Ford Station Wagon and '26 Lincoln Phaeton (Brunn Body). Bob (shown above) and Art are firm boosters of Magna-Power. "All of our cars have more pep and power due to the Magna-Powers in them," Art states. "Our 'baby,' the prize-winning Lincoln, doesn't burn any oil at all. And the oil stays perfectly clean between changes. I'd say a Magna-Power is definitely worth much more than the price you pay for it!" Not shown above is Art's family car, a '54 Nash Rambler—also Magna-Powered!

operating above the dew point of the blow-by gases, no moisture was getting into the oil, as is common with car engines. Johns knew that sulphur present in all grades of gasoline was (after combustion) combining with moisture in car engine crankcases and forming sulphuric acid. It is this sulphuric acid that attacks the vital parts of engines, aids the formation of damaging sludges, gums and resins and causes 90% of all engine wear. Johns then reasoned that if there were some way to destroy the acid that forms in the crankcase of car engines, he would be able to stop the major cause of engine wear and power fade.

Develops Magna-Power

Putting this principle to work, Johns experimented by putting various alloys of magnesium in engine oil to help neutralize and destroy the corrosive acids as they are formed. After many months he developed a special magnesium alloy that was perfect for the job.

Then came months and months of testing to prove beyond a shadow of a doubt that his discovery actually did stop the major cause of engine wear. Johns equipped a 1940 Ford coupe with his special magnesium alloy by attaching a bar of the metal to his crankcase drain plug. He also attached a tiny Alnico magnet to the magnesium to remove any iron or steel filings in the oil. The car was then driven in normal use—stop and go, short trips and long trips. After the Ford had been driven 115,000 miles without a single major overhaul or repair, the pistons were removed for inspection. Everyone—including the inventor himself—was astonished!

There were practically no signs of wear! Some of the original machining marks were still visible on the rings and pistons. The engine was put back together again.

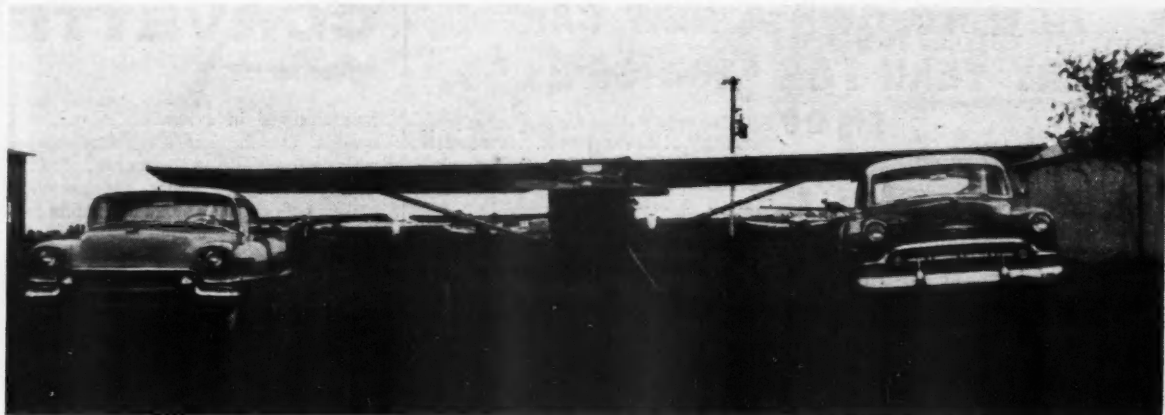
Today Johns' 1940 Ford is still being driven every day. It now has 176,129 miles on it! Imagine! 176,129 miles! It still retains the pep and power it had the day it came off the assembly line!

Many thousands of miles of controlled tests were conducted on other cars and trucks before Johns put Magna-Power on the market. In one notable experiment, the Farmers & Consumers Dairy Co. of Morristown, N.J., put Magna-Power in half of their 22 door-to-door delivery trucks. After being driven many thousands of miles, the engines without Magna-Power showed $5\frac{1}{2}$ times more wear than that of the engines with Magna-Power.

How Magna-Power Works

Just exactly what is Magna-Power—how does it work? Actually, Magna-Power is a very simple little device. It is a carefully machined bar of a special magnesium-alloy metal. It is attached to the crankcase drain plug (the correct size for your car). It cannot come in contact with moving parts. But it is always in direct contact with your engine oil. Here are the three main things Magna-Power does: 1. effectively neutralizes (destroys) corrosive acids in your oil; 2. greatly reduces the formation of damaging sludges, gums, and resins; 3. destroys the

JOHNS RESEARCH LABORATORIES, DEPT. M-12, MIDDLESEX, N.J.



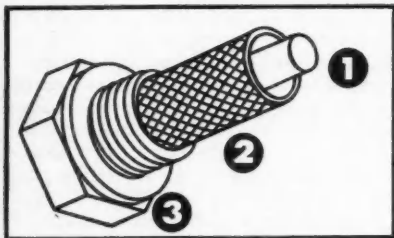
On the land . . . in the air, Magna-Power is doing an engine-saving job for Culver NeSmith, Pres. of Aerial Patrol Service Corp., Tulsa, Okla. Shown above are NeSmith's '56 Cadillac, '53 Chevrolet and Luscombe 85 hp patrol plane. In a letter, NeSmith tells us, "I think

to cut wear and operating costs, you have a very inexpensive answer. I intend to use Magna-Power in the plane and cars as long as I operate them. It certainly seems to lengthen spark plug life and reduce carbon!"

cause of deposits on spark plugs . . . deposits that rob by pre-ignition and internal shorting.

Magna-Power's Benefits

The direct benefits Magna-Power can give your car engine are these: It reduces wear on vital moving parts up to 80%; it increases engine power by eliminating sludge and resin formations; it slows the deposit build-up on spark plugs—promotes far longer plug life; it allows you to use your oil efficiently for over 3,000 miles before a change is necessary.



1. Powerful Alnico magnet that removes damaging iron and steel filings from the oil.
2. Special magnesium alloy metal that constantly neutralizes and destroys all corrosive acid in the oil as it forms.
3. Crankcase drain plug—the correct size for your car, including gasket where needed.

Why Magna-Power is not in new cars

A new car (or a rebuilt one) has to go through a break-in period. The new car engine must actually "wear in"—loosen up for maximum efficiency. Because Magna-Power cuts engine wear by 80%, new car engines would not break in correctly until about 25,000 miles! Magna-Power should be installed in new cars at the end of the normal break-in period when you change oil. Cars that are already broken in—whether your have 5,000, 20,000, 50,000 or 75,000 miles on your car—can be greatly benefited by Magna-Power immediately!

30-DAY FREE TRIAL

We are so confident of Magna-Power's benefits that we are offering it to car owners on a free trial basis. You merely mail in the coupon below. We send you your Magna-Power—already attached to the correct crankcase drain plug for your car. It's easy to install. You install it and start enjoying the benefits of it. At the end of thirty days you pay \$4.95 (plus 25c postage and handling). If you are not entirely satisfied, you may return the Magna-Power at that time—and it has cost you *nothing!* (But—satisfaction is so great that our percentage of returns is only a fraction of one per cent). Available for all U. S. and European cars, trucks, and buses; marine, outboard, lawn mower and many other engines—if we don't have it we'll make it!

TECHNICAL EXPLANATION

Each metal in Magna Power has a purpose. One, magnesium (highly alkaline), destroys corrosive acids and catalysts—probably peroxides and hydroperoxides. This blocks chain reactions that polymerize and copolymerize oil molecules into heavy, resinous or varnish compounds that make sludge and other choking deposits. A drastic reduction of resin and sludge is noted—often in the order of 100 to 1—and a very much cleaner engine. The alloy destroys corrosive acids both by direct neutralization and by electrolytic action. The potential as an anode is about 1.7 volts above iron; thus the alloy prevents corrosion by discharging hydrogen ions electrolytically. The other metals in the alloy help maintain its chemical activity; all are required for balanced operation.

Canadian orders filled from Toronto—no duty, no red tape . . . \$4.95 each Canadian Dollars. Send to Magna-Power Sales Co., 190 Brookside Ave., Toronto 9, Ont.
In Mexico: Apartado 683, Mexico 1, D. F.

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My car is a _____ (make) _____ (year)

\$4.95

PAT.
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Send me a Magna-Power for my car on your 30-day FREE TRIAL. If I like Magna-Power, I will promptly send \$4.95 (plus 25c postage and handling). Otherwise I will return Magna-Power and owe you nothing!

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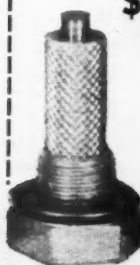
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(Make and year 2nd car)

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DEALERS HATE US, YOU'LL LOVE US. Read these "Secrets" and learn why:

- 1958 WHOLESALE PRICES OF ALL CARS AND ACCESSORIES (Boy does this one have them on their knees) Banks pay up to \$35 for this information.

- HOW AND WHERE YOU CAN BUY NEW AND USED CARS AT NEAR WHOLESALE. (Savings up to \$1400). This really flips 'em.

- HOW TO SAVE HUNDREDS ON FINANCING. (For this we'll probably get shot.)

- WHAT'S WITH THIS FOREIGN CAR BIZ? (Maise out show you?)

Also: HOW TO SELL A CAR; BEST BUYS IN '58; 20 WAYS TO SAVE ON UPKEEP.

And: HOW TO DRIVE A GOOD USED CAR FOR \$100 OR LESS A YEAR. (A real revelation)

Lots of other money-saving information for every car owner. For this price, no one, but **no one** should be without a copy of the world's most emotionally-disturbing book (to guess who?). The public deserves to know the facts. Your money back if not delighted — and we do mean **delighted**.



Arnolt-Bristol Bolide... not easy to achieve is that balance between brute performance and all-around utility that marks the true dual-purpose sports car. In the Arnolt-Bristol Bolide, a most enviable competition record speaks for performance; quiet good manners in traffic and remarkable reliability speak for everyday usefulness. Except on the race course, you'll never need all the acceleration, braking power, and cornering ability built into the Bolide, but it's reassuring to know they're on tap.



S. H. ARNOLT, INC. CHICAGO SALES SALONS
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CORVETTE

continued from page 55

face arranged in a semi-circle and well hooded. On the left are round gauges which tell the tale on the fuel supply (the tank holds 16.4 gallons and premium grade is almost a must) and cooling system temperature. On the right of the tach is a matching ammeter and a genuine psi oil pressure gauge. Below this well arranged grouping are, on the left of the steering column (which we feel should be adjustable), switches for headlights and the electric windshield wipers. The ignition switch and lighter are to the right.

Centrally located between the padded dashboard and the transmission hump is a large console housing the radio which was fitted with touch-tuning, the large clock, and the heater and defroster controls.

The stubby but exceptionally handy transmission stick falls easily to hand in its central position. The bucket seats are as comfortable as you could wish for. The driver's companion has a very sports car-like assist bar if he or she feels called upon to grab leather in a fast corner.

The specifications read much as last year; the dimensions are little altered—the nose is a bit longer and the horizontal outboard bumpers attach directly to the frame and will actually protect. The appearance of airscoops below the new dual headlights is deceiving—these could be made functional and according to rumor they may be on full competition models.

The high style indentation along each side is now trimmed up with the appearance of an air outlet just forward of the door. Unfortunately the louvers on the hood are phonies too. The rear deck has dual rises or windsplits running all the way down to the bumpers which, again, are fully functional.

The buyers again can have the optional built-down hardtop—but the roll up windows with optional power controls make the rag-top convertible snug and warm. Perhaps one of the most intelligent standard items of new vintage are the built-in dual reflectors in each door; these reflect oncoming lights if you happen to be parked along the side of the road at night.

Does it go? Indeed and it should with its 230 bhp. The rear axle in our Corvette was the 4.11 to 1 unit standard with four speeds (4.56 is optional while the ratio for the three-speed box is 3.70) and the overall gearbox ratios were 2.20, 1.66, 1.31, and 1.00 first through fourth gear, respectively. These gears drove this charger to 60 and 80 mph in 6.8 and 11.0 seconds with less than five per cent speedometer error. Shift points worked out to 59, 79, and 98 mph taking the revs to 5600 each time. Handling? Like all recent Corvettes, without fault—it's fast, furious, and wonderful. We hope they build thousands.

—Joe H. Wherry

HANDY hints

by Rodger Darling

STUCK?—If an early snowfall finds you with a rear wheel spinning helplessly try this: Pound the fender of the wheel that is spinning . . . you may dislodge enough caked road-dirt to give your tire the needed traction. OR, if you have some substantially-built passengers in the rear, have them bounce vigorously up and down in unison while you feed a light throttle. OR, look for a snow-covered box or pile of sand that authorities often provide at skid-prone spots. OR, deflate your rear tires five pounds or so (being sure to drive slowly until re-inflating them at the next service station). OR, tie a number of turns of light rope or even heavy string around the tires, through the wheel openings. OR . . . say, didn't you ever hear of skid chains, pal?

ANTI-FREEZE WINDSHIELD WASHERS—

You must remember that freezing will break the glass jar of your windshield washer if it contains nothing but water. If cold weather catches you without any of the regular solvent, you can prevent breakage by adding ethylene glycol anti-freeze, which will also melt ice on the windshield. (Not methanol . . . it can harm hood finish.) Liquid household detergent added to the water will lower the freezing point somewhat and, even in the break-proof plastic reservoirs, helps clean the windshield.

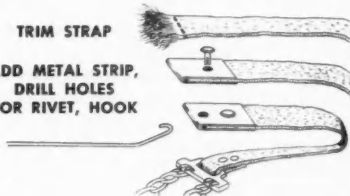
SAVES WARPED BRAKE DRUMS, TOO—

There's really no need to leave your parking

brake on in your garage, especially during wintertime. If you've driven in from the slushy street with brake linings, linkages, and cables wet they may freeze "on" when the temperature tumbles during the night, making your car impossible to move without brake damage or troublesome thawing. To keep the unbraked car from rolling on an uneven floor, just chock a wheel with a wedge-shaped rock or block.

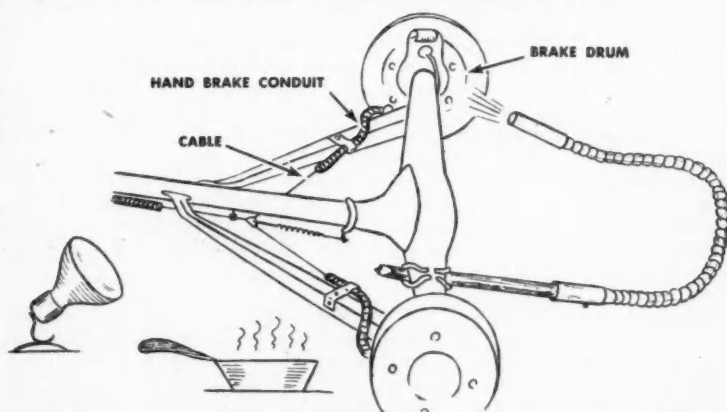
EASY WAY TO STRAP ON CHAINS—If you have ever had to kneel in the snow and fumble with frozen fingers behind overhanging fenders while trying to mount "mud hooks" or emergency chains, you know how that frayed strap end bunches up and refuses to fit through the narrow wheel openings. Make this job easier by "streamlining" the strap as shown with a fray-stopping tip of

TRIM STRAP
ADD METAL STRIP,
DRILL HOLES
FOR RIVET, HOOK



metal linoleum-binding or weather-stripping. Also, instead of trying to thread the strap through those elusive slots from behind the wheel, slip a steel wire through the slot from the outside, hook it into the hole you've drilled in the metal strap-tab and then pull it back, drawing the strap with it.

KEEP FINGERNAILS CLEAN—You won't have unsightly, black, impossible-to-clean fingernails after tinkering with your car if—before the job—you scratch your nails across a bar of soap. The soap blocks dirt out and after the job is easily removed by washing or nail file. Also, hard-to-remove grime in pores can be sealed out by previously rubbing well into hands a thin coating of vaseline.



WET, FREEZING WEATHER—If your brakes get wet and then freeze you may not be able to move your car at all . . . which is just as well, for trying to release frozen brakes by driving doesn't do your brakes any good! If the freeze-up takes place in your garage, a heat lamp aimed at the drums, linkage, and parking brake cable conduits will thaw them

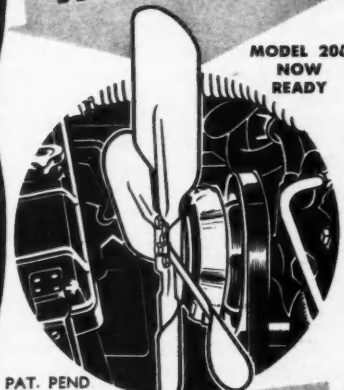
quickly. If outdoors, you can direct needed warmth through a vacuum cleaner hose attached to the exhaust of the warmed-up engine. Parked away from these handy home devices you may still be able to obtain a pan or two of hot water which, sloshed strategically (if awkwardly!) up at the frozen parts, should release them.

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THAT AUTOMATICALLY
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At speeds over 35 MPH, standard automobile fans waste horsepower! The FAN-O-MATIC now makes your fan a free-wheeling unit, releasing wasted horsepower at speeds over 40 MPH

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EDSEL on TRIAL

BORN OF THE YEAR'S OLD SECRET MARRIAGE between Ford and Mercury, apparent contradictions in their 250-million-dollar offspring (Edsel) led us far afield in evaluating this newest of transportation packages from the Ford Motor Co. To obtain a truly complete across-the-board appraisal of Edsel's merits, two new hardtops were driven a total of more than 8000 miles across the United States.

Yes, test cars were available to MOTOR TREND in Hollywood, but engineers told us there's no better way to evaluate highway transportation than to use it. And use it we did.

The Pacer, driven by MOTOR TREND's editor Walt Woron, logged 4416 miles from Detroit to New York, then to California via New Orleans. The Corsair was driven by me from Detroit to New York, back to Detroit, to Minnesota and finally California, a total of 4258 miles. These were rigorous runs on turnpikes and rutted detours, in drenching rain and under the heat of Texas plains. Not only did we really drive the Edsels, but what is more important, we exposed them to critical comments of other motorists and unbiased public reaction.

As you know, two low-priced Edsels (Ranger-Pacer) are built around the Ford body shell, chassis and T-Bird engine. Our test Pacer had power seats, windows, brakes, steering; a heater, radio, and the extras usually attached to deluxe equipped cars. Given nearly idealistic predelivery attention by factory mechanics, it showed 186 recorded break-in miles when delivered. Body panels, doors, and windows were perfectly fitted and the paint was excellent both inside and out. Only the hood latch acted up to require a minor adjustment in New Orleans during factory warranty servicing.

The other MOTOR TREND car was a handsome Corsair, selected for testing because it, like the Edsel Citation, is a "kissing cousin" of the Mercury. It was equipped as the Pacer, except no power seats or windows. Unfortunately pre-delivery service had not prepared the car for cross-country running and it was in and out of three Edsel garages, burnt out one transmission motor (the second began to sag after 2000 miles) and wore sheet metal that appeared to have been fitted in the dark.

STARTING AN EDESEL proved a cinch. After unlocking a door, the same key operates the ignition and starter lock located to the right of the steering column. Engine warm-up is average for the Pacer, downright rapid (one minute in a cold Nebraska morning) for the Corsair. In speaking of the Pacer Walt said, "It's easy to park because of power steering and good vision. Streetcar tracks, ruts, or pavement splits cause a side pulling action which may be the result of the 8:00 x 14 tires. Feels big in comfort, yet not tremendous in terms of traffic maneuvering."

The Corsair met with my approval on all the Pacer's points except the feeling of size. It is a large car. And as such does not lend itself to flying through dense traffic with the nonchalance of a Pacer.

HOW DO THEY HANDLE? Chassis of the Pacer, though basically Ford, has Edsel-designed modifications to improve softness of the ride. The Pacer handled well under all conditions, causing only a little "whip" when driven off asphalt onto rough dirt shoulders. No drumming, cowl shake, or wheel shudder was noted. Our comment, "There's no vibration at any speed even on the roughest road—don't know how they dampened it out. Feels secure and solid on choppy, washboard or gravel roads. No wallowing action coming out of dips and holds a steady inline position. Feels quite a bit like a Ford or Mercury ('57) and

that's good. You can push it into corners and punch the throttle coming out in case you want to drive fast, or just take it slow. Feels good both ways."

In contradiction, the Corsair (mostly Mercury chassis components) is a complete disappointment in the handling department. It wallows like a whale, noses into corners, then tries to play crack the whip with its rear. Cowl and steering wheel shake reach alarming proportions while wee irregularities of the Penns'y Turnpike shimmied up through the floor pan and seat to keep my rear from going to sleep. Handling is heavy, with power steering action erratic around even radius corners, forcing continuous control every inch of the turn. A word of warning about cornering on wet pavement: Feather your throttle carefully as the Corsair engine has so much low speed torque (and rear tire adhesion is slight) you can whip sideways into other traffic faster than it takes to write this.

Under both Edsel hoods is the most modern pair of engines it's been my experience to enjoy in production automobiles. Walt liked the Pacer's E400 and I'm certainly sold on the powerful E475. Design shows critical attention to detail, with quality and long life built into every part. They are accessible for service (plugs above the manifold, easily reached oil filter, distributor high in front) and have maximum torque outputs below 3000 rpm. The Corsair never once failed to have more beef than I needed and on long grades easily separated the huge hardtop from panting Chevrolets and Dodges.

Analysis of trip records showed the Pacer (E400 engine) to be providing 15.04 miles to each gallon of Mobilgas. Average road speed was 49.92 miles an hour for the recorded run of 4416 miles, during which one quart of oil was consumed. In comparison the larger Corsair traveled 11.71 miles per gallon of Mobilgas and only 187.5 miles to each quart of oil. Average speed was 48.65 miles an hour for its 4258 miles. To achieve these average road speeds we had to drive 65 and 70 miles an hour on open highways while making up for rural and suburban 25-mph zones.

PERFORMANCE CHECKS at the local drag strip showed the Corsair turning 80.70 in the quarter-mile. A '57 Olds Hydra-Matic Super 88 with three two-throats hit 81.79, a Fury with Torqueflite 78.18, a '57 Pontiac Hydra-Matic Chieftain with a single two-throat 83.25, and another '57 Olds Hydra-Matic with a single four-throat 79.15.

Huge torque ratings and automatic transmission gearing provide more twist to the tail than rubber can handle, which results in smoky and noisy starts. A little practice and you can clip seconds off acceleration times by judicious throttle tickling at take-off time.

"WHAT'S IT LIKE INSIDE?" was a frequently asked question. "Terrific" is the answer which applies equally to either the Pacer or Corsair. Other than small differences in the amount of legroom both cars offer exceptional ease of entry and exit, with dual catch hinges holding doors open at the most convenient angle. Back seat passengers have loads of room created by deeply dished floor pans. The offset split back hardtop front seatbacks give plenty of passing space to the rear seats, although the uneven floor detracts slightly from ease of entry. Walt (at 175 pounds) wasn't too happy with soft seats of the Pacer and said, "They might be good for a short trip, but not for long. On a severe bump I could feel the springs."

On the other hand, I can't say enough about wonderful seat-

Cross-country 8000-mile run in two EDSELS tells all!

by William Carroll

ing in the Corsair. I'm no lightweight, but the driver's section (and it is a separate section) supported me firmly allowing 18 hours of nearly continual driving with no backache. Not only is the driver given a visibly separate section of the front seat, but springs in his area are of differing tensions to provide a shallow bucket seat effect for both back and seat. Edsel designers went to a lot of trouble for driver comfort and I for one really appreciate their successful efforts. By comparison, the right two-thirds of front seat is uniformly firm for its full width.

Both Walt and I like the wheel position and found Edsel's "Model A" speedometer a genuine delight. No more searching a dial for speed ratings. Look at the same place each time. Speed is there and easy to read. The grouping of wonderful little sensing lights which indicate oil pressure, water temperature, etc., are unfortunately too low to be easily seen: Even direction signal arrows on the dash are hidden behind hands gripping the wheel at logical "Ten" and "Two" positions.

WEATHER-WISE DRIVERS are rightly concerned with heating and ventilation systems of new cars. We are too. On Edsel instrument panels is the "Single Dial Temperature Control" which guides an electric motor to adjust incoming fresh air, the heater, and defroster vents. The only thing left is to flip a quiet heater blower speed switch. Heat from the Pacer takes several minutes to arrive, while the Corsair's triple-thermostat-equipped engine provides hot water for interior heating in about one minute. Neither Pacer nor Corsair controls were ever able to shut cold outside air off completely; while, as though to make up for its failure, the Pacer air intake always whistled at 50 mph.

Wrap-around and cut back windshields don't lend themselves to the design of efficient ventilators for front windows. And Edsels are no exception. Tiny vent panes whistle and exercise little control on vagrant winds. A clever cone adjustment is in the top of each ventilator so those refusing to stay open at high speed can be tightened in a moment or two. Vision is excellent from both cars and the broad rear fenders actually encourage accurate parking. Between the same fenders super-size Edsel trunks run the Ford Ranchero a good race to see who carries the most. Spare tires are mounted in a "roll-out" position which eliminates the strain of lifting tire and wheel from a deep floor compartment. Trunk lids are well balanced and should lift weaken with age, either torsion spring can be tightened to pop the lid skyward without help.

PUSHBUTTONS ARE THE BIG NEWS with Edsel's transmission. And believe you me, they are terrific. Last year it took several weeks to find the buttons on my '57 Plymouth, but in only a few hours I was shifting the Edsel without taking my eyes from the road. No problems with pushing the wrong button either. Internal widgets prevent parking at 65 miles an hour or slamming into reverse at any speed over three miles an hour. Shifts are no better or worse than any Ford-Mercury-Lincoln automatic, with smoothness depending on linkage adjustment and how far your throttle foot is shoved through the floor. Push the "Lo" button and there the transmission stays—making no upshift. Use "Dr" and make a full throttle start; the transmission shifts from First to Second to Direct. A moderate throttle start in "Dr" uses only Second and Direct. Kickdowns are found at any speed under about 65 miles an hour, while the transmission shifts to a lower gear automatically as speed ranges of 10 to 20 mph are reached. On the sad side: We burned up one shifter motor on the Corsair and had a second motor malfunction 2000



miles later. Though we've been told it's permissible to downshift at speed (slowing by compression), it is just possible early transmission servo motors were not up to shifting against the terrific oil pressures of mountain road speeds.

A lot of people asked us about the brakes, and Walt and I were glad to tell them that Edsel brakes really do the job. The power brake pedal is about as high as the accelerator pedal and easy to use with either left or right foot. They neither swerved nor locked up and even during severe use in mountain driving, neither of us noticed evidence of fading. The self-adjusting feature (they adjust as the car is backed and the brakes applied) solves any problem of keeping topnotch efficiency. The mechanism is so designed that it is impossible to overtighten the shoes.

Buick may have had it longer, but Edsel was on the ball in adopting a step-on parking brake pedal which tightens rear brake shoes through action of steel cables. The "T" pull-off handle is near a similar handle for the hood, which caused Walt to try opening his hood when all he wanted was to relax the parking brakes. He closed the hood, tried again and this time pulled the right "T" handle.

Rattles and squeaks (other than suspension squeaks for the first thousand Corsair miles) were non-existent when the cars were new. And non-developed during their cross-country testing. Doors refused to flex or rattle on the roughest roads and maintained a secure tie to the lock pillar. Rubber cushions at corners of the hood and seal strips around the trunk lid made sure no sound developed at these points. Unhappily the Corsair windshield leaked madly during a rainstorm as did a yet un-found hole under the dash which filled my left shoe with water.

ACROSS THE COUNTRY, drivers and pedestrians turned to peer and comment on the beautiful Edsels. Approvals were in the majority, with styling comments usually "Wow" or "Hey Maw, look at the Edsel." A cabby cut in front of the Pacer, stopped to block traffic and shouted, "Sure looks good. How much?" An Air Force officer thought it looked enough like his jet fighter to be a good buy.

THEN THERE WERE "DON'T LIKES": A '57 Olds owner holding his nose while passing; service station attendants (many) who hate rear-opening hoods because greasy hands have to be planted on top to shut the lid and safety latches that are opposite the dipstick forcing a trip around the front after opening the hood; the Edsel owner with oil leaks, a sticky hood and trunk he couldn't open; the dishwasher who thought it looked kind'a funny; a wash rack having trouble tying to split bumpers.

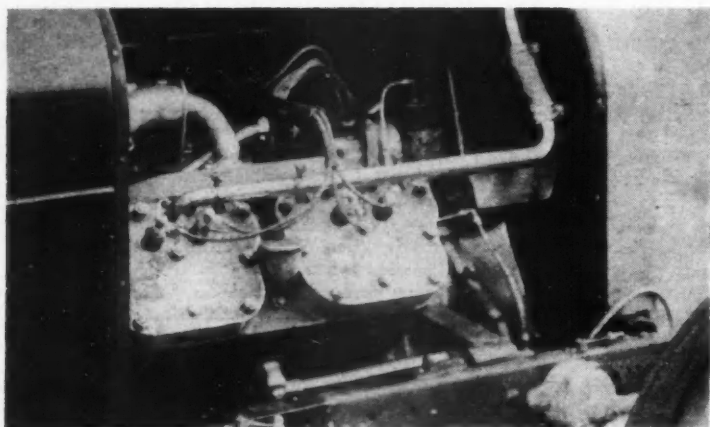
With nearly 10,000 miles of serious testing under our trousers we must admit to still being a little confused about an Edsel's merits. Particularly after reading a recent FoMoCo press release which concluded with the following: "Edsel (Ford) knew that the goal of automobile making was the pleasure of the owner, and to this end he insisted on comfort, service, quality and beauty."

We found that comfort varies greatly between the models, the Pacer provided service while the Corsair needed service much too often, quality is in the components but not in their assembly or inspection and as to beauty: Walt's not sure he likes the lines—and I believe it's the sharpest car of 1958. /MT

the CLASSIC CUNNINGHAM

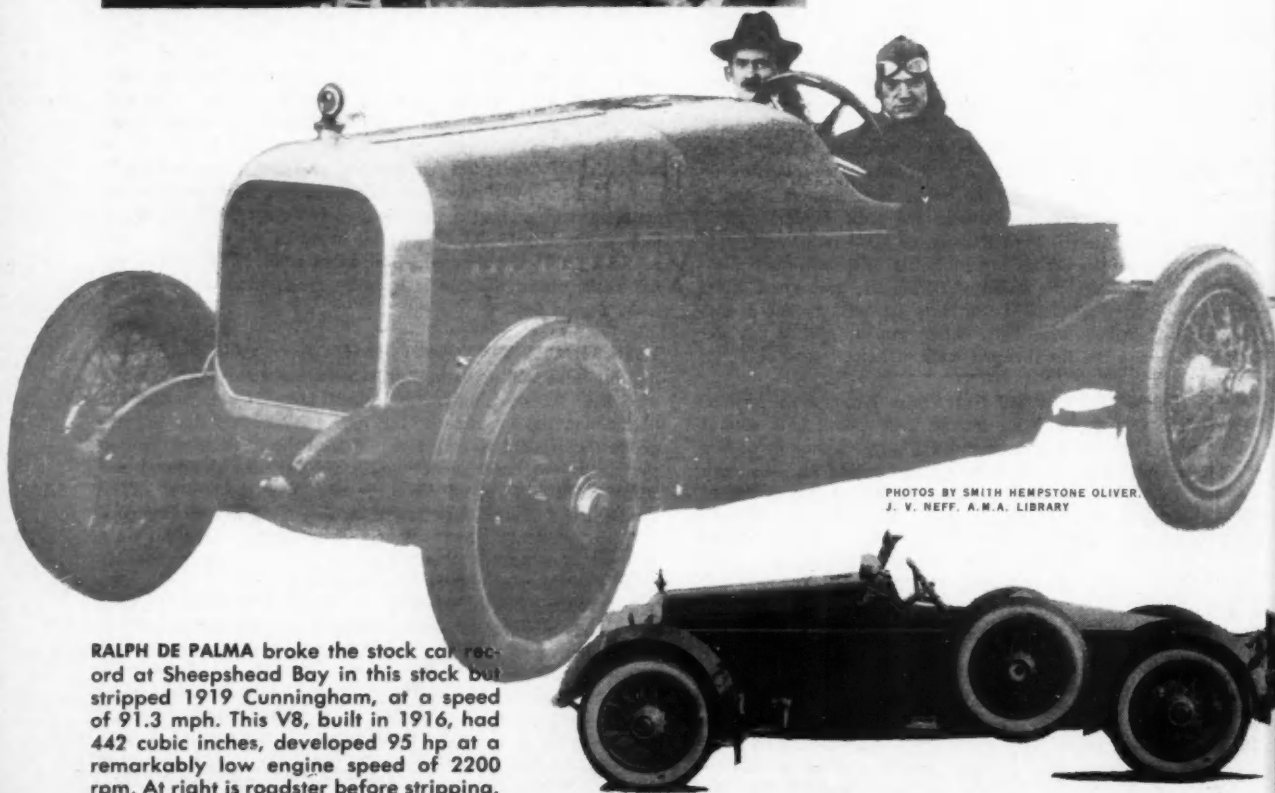
A QUALITY CAR THAT WAS BORN IN 1911,
FATHERED A V8 ENGINE DURING WORLD WAR 1,
AND DIED DURING THE DEPRESSION

by Smith Hempstone Oliver



THE NAME CUNNINGHAM, when mentioned today, brings to most automotive enthusiasts thoughts of the gallant attempts made at LeMans in recent years by America's sporting automobilist, Briggs S. Cunningham. However, to many an older person, the name connotes an entirely different thing—a passenger automobile of great quality, constructed when names like Stutz, Mercer, Locomobile and Pierce-Arrow were common household words.

James Cunningham, Son & Co., of Rochester, N.Y., builders for many years of fine horse-drawn vehicles, turned their interests to automobiles of quality in about 1911. The version that today is most ap-



PHOTOS BY SMITH HEMPSTONE OLIVER.
J. V. NEFF, A.M.A. LIBRARY

RALPH DE PALMA broke the stock car record at Sheephead Bay in this stock but stripped 1919 Cunningham, at a speed of 91.3 mph. This V8, built in 1916, had 442 cubic inches, developed 95 hp at a remarkably low engine speed of 2200 rpm. At right is roadster before stripping.

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preciated by the classic car lover is the car powered with Cunningham's own V8 engine, first brought out in 1916.

Built for almost 20 years with only minor changes both in the chassis and in the engine, the Cunningham was one of America's most expensive cars. As was so often the case with cars of this type, it sold for higher and higher prices as time passed. Indeed, after the depression had started, the price rose up to \$8-9000.

The Cunningham was not an assembled car, as was the case with many cars of its day, although some of its components were of necessity purchased from other manufacturers. The major portions of the car were built in the Cunningham factory, and included the engine, the transmission, the multiple-disc clutch, the springs, and the luxurious aluminum bodies. Several hundred Cunninghams a year were built for a considerable period, but approaching the unfortunate demise of this famous make, less than a hundred a year were built. Many were ambulances that were often seen in New York City.

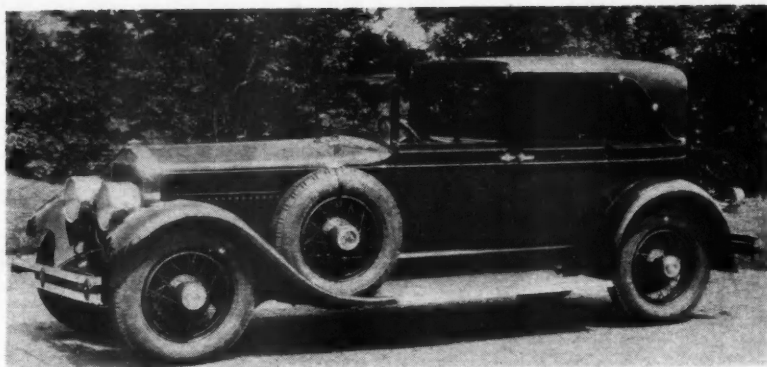
The engine, one of the most interesting features of the car, was a 90-degree, L-head V8 with two blocks of four cylinders each mounted on an aluminum crankcase. The four removable aluminum cylinder heads were cast in pairs, and were machined and polished on their outer surfaces. Aluminum pistons were used as early as 1922, and undoubtedly earlier. Horsepower actually developed at 2400 rpm was 90 during the early 1920s, but 110 bhp at 2500 rpm was claimed in the late 1920s and early 1930s. Bore was 3 $\frac{3}{4}$ inches, stroke five, giving a piston displacement of 442 cubic inches, exactly double that of the early Ford V8 engines.

The chassis was available in two wheelbases, 132 and 142 inches. The front springs were semi-elliptic, the rear three-quarter elliptic. A torque-tube drive and a full-floating rear axle were used. Both the service and emergency brakes were on the rear-wheel brake drums until the middle 1920s, at which time Bendix brakes were fitted to the front wheels to supplement the rear-wheel service brakes. Artillery, disc, and wire wheels were available, the latter being of the well-known Rudge-Whitworth type.

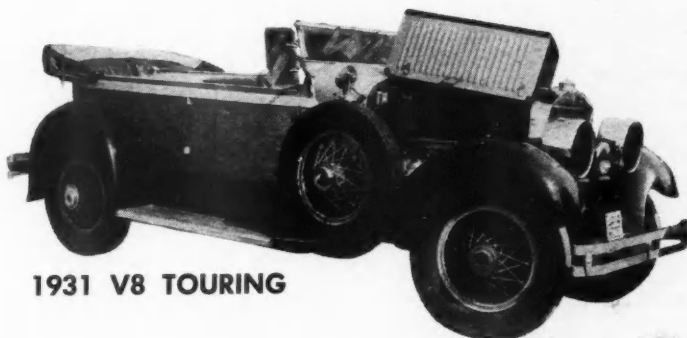
The four-speed gearbox was a large affair surmounted by a beautiful lever that was a joy to manipulate. Most of these boxes had direct drive in fourth speed, but a few had an overdrive for fourth speed.

Of interest to many nameplate collectors is the fact that the plate used on the V8s for the first 10 years or so illustrates the outline of the front elevation of a Cunningham car, even down to the unique fender lamps. Later nameplates consisted merely of a shield containing three vertical bars. The Cunningham name appeared on some of these, but not on all.

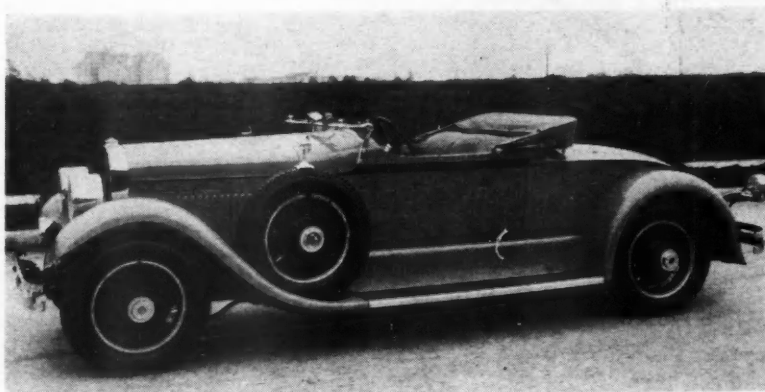
Not many of the admirers of the classic Cunningham know that it had a racing



1929 TOWN CAR



1931 V8 TOURING



1929 ROADSTER

background, acquired at the hands of no less a personage than the late great Ralph de Palma. Several AAA records were set at the famous board track at Sheephead Bay on November 17, 1919. In the stock chassis category, regardless of class, and in a non-competitive run, a stripped Cunningham speedster covered six miles in three minutes and 57.80 seconds, eight miles in five minutes and 16.60 seconds, and 10 miles in six minutes and 35.40.

Reverting to their original business of coachwork construction, Cunningham had a final fling in the middle 1930s when they converted a limited number of Ford

chassis by the addition of elegantly constructed bodies. Unlike Brewster, who lengthened the Ford chassis and constructed special fenders to accompany the Brewster body, Cunningham was content with leaving the wheelbase as it was and, retaining the Ford fenders, concentrating solely on the coachwork. The resultant product, which would cost its owner less in case of fender mishaps, incidentally, sold in 1935 for about \$2500. Shortly afterwards, Cunningham disassociated itself completely from the automobile business, another instance of a grand name disappearing from the auto scene. /MT



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'58 CHEVROLET

continued from page 53

flat-bottomed heads which sit on the block faces at a 16-degree angle may cause little notice. However, the pistons have rather unusual tops: they're of cast aluminum and are machined with 16-degree dual-sloping surfaces. The lifters are hydraulic, the lift is not yet announced but the valve diameters are large—1.94 and 1.66 inches respectively intake and exhaust. Because of the lack of restrictions to passage of the fuel mixture in the heads, and because

half of the piston is closer to the head than the other half, turbulence is tremendous and volumetric efficiency should be excellent.

Dual exhausts are standard with the 348-inch engine, cooling is extremely good with free flow around each bore, and while a four-throat carburetor is standard, three two-barrel units may be had optionally. How does it go? With the four-venturi carburetor it took just 10.7 seconds to hit an honest 60 with Turboglide. Production models would better this, I'm sure. And, you can still get a three-speed synchromesh box. It's a fine car! /MT

MERCURY

continued from page 35

The big boy though, the long stroke 430-inch engine, tops out at 400 bhp at about 4800 rpm with an optional triple two-barrel carburetor setup and special manifold—something even the big Lincoln with about the same engine is not offering. With standard four-barrel carburetion this powerhouse is rated at 360 bhp at the same rpm while torque, in each instance, will be advertised at least at 480 pounds-feet at around 3000 rpm. This big engine is standard only in the Parklane but will be optional in the Montclair Turnpike Cruiser. Lesser Montclair models and all Montereys and wagons will not offer the 430-inch engine.

This Marauder engine, in both sizes, is another in the rapidly growing crop of cylindrical wedge combustion chamber types which got kicked off, for '58, with the Edsel. The top of each cylinder block is cast on a 10-degree angle with the bore of the cylinders. The bottom of the head is perfectly flat, enabling the valves to be somewhat larger and for the fuel-air mixture to flow without restrictions. This permits closer tolerances and should make for perfectly even compression ratios from one cylinder to the next. The new heads are designed so that no two exhaust valves are adjacent, which should help eliminate hot spots. The aluminum pistons have an integral raised wedge on the top surface to create increased turbulence, and the connecting rods and main bearings have greatly increased diameters.

The rocker arm covers are now held down by bolts through the outer rims, six to each cover. This now takes a few seconds longer to attach the covers to the heads, but it will eliminate damaged covers from through-bolts and should eliminate oil leakage around the edges, a critical point in some recent ohv-V8 powerplants.

The spark plugs are now easily reached; the oil filter case is vertically mounted at the engine's left front for better access; the fuel pump with attached sediment trap is atop the block immediately aft of the fan; and the distributor is in

the same easily reached location. Servicing this new engine should be greatly simplified.

New exhaust manifolds of a ram's horn design have the outlet centered for more equal flow, and dual pipes are standard on the 430-inch engine. Standard air cleaners all have a cellulose filter. Lubrication of this engine should be better, for the previous pick-up tube from the screen to the pump is replaced with a tube only fractionally as long; the new oil pump, a rotor-type positive displacement unit, is at the engine's front inside the oil pan.

Ventilation of the Marauder engines has received close attention for now there's a draft tube at the rear aiding front-to-rear flow of the air which enters through the oil filler cap; the latter is at the right front on top of the engine. Merc engineers say that the two separate drafts of air now meet at the draft tube and that corrosive gases are carried out before they can be accumulated. Previously the air, while entering at the front, flowed to the rear and was then forced to return back to the front for expulsion. The cooling system is a three-stage type with the water admitted, by successive operation of three thermostats, first to the heads and intake manifold water jacket, secondly to the block, and finally back through the core of the radiator.

We drove two new Mercs: a 330-horsepower two-door Monterey hardtop and the big 360-hp Parklane, a prototype of the swank four-door phaeton that is to compete against the Oldsmobile 98 and the middle Buick models, the larger DeSoto, etc. Each had the new Multi-Range gearbox, essentially an improved Merc-O-Matic with smoother downshifting and better engagement in reverse. The pushbutton panel is slightly changed with two wide buttons at the top. The left one, for *High Performance*, always starts in LOW and runs through second to top for the best acceleration. *Cruising Range*, actuated by the top-right button, starts in second gear and, we must admit, is a bit smoother. REVERSE button is at bottom-right; next to R is "Hill Control"—this locks the automatic box in LOW

continued on next page

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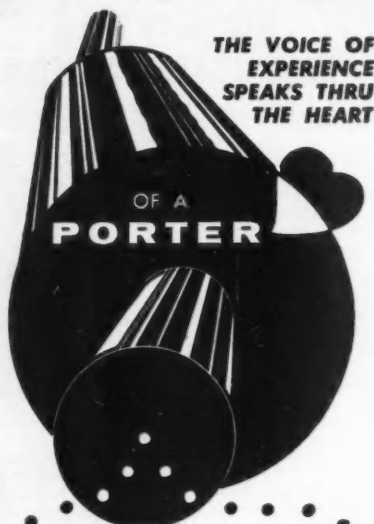
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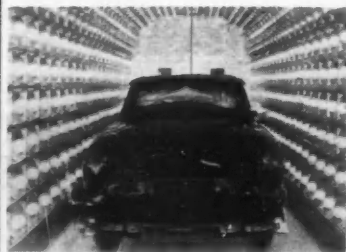
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continued from previous page

for hard pulling or descending steep grades. Starting is still accomplished by the NEUTRAL button; the parking brake is still pulled on by the same means—pushed off.

Neither of MT's trial cars had the new "Air Cushion Ride" and so the suspension was substantially like the '57 Mercury but without the now-eliminated rubber "doughnuts" securing the front trunnions of the rear leaf springs. Nor did we have the trailing arms in the rear. Merc's air bag and levelling system are quite like those of the Ford (see pages 28-31).

With power steering and the standard rear axle of 2.91 to 1 ratio, the 360-hp Parklane hit 60 mph in 10.2 seconds, went from 50 to 80 in 10.4 seconds in DRIVE. The lighter-weight 330-hp Monterey was a little quicker—did 60 in 9.7 and 50 to 80 in 10.2 seconds. Each had all of the roadability that has made the Merc famous. Each has enough new features to interest any 1958 buyer.

The triple two-barrel carburetion of the optional 400-horsepower engine should be one of '58's very hottest performers.



"It wasn't a two-car garage until he traded for those new, lower models."

The brakes of the '58 Mercury now have 233.5-square-inch lining area and an automatic adjustment; as the brakes wear, regular use actuates a pawl device which takes up the shoes the precise amount. The Parklane made seven fast stops before fade began; so slight, though, was this fade that several more emergency stops were made before effectiveness was decreased to nothing—then a fast turn around the high speed loop restored full effectiveness.

These are great cars—although the styling continues to have a peculiar effect on many persons. All the accessories imaginable are available, and each series has a full complement of body models. The interiors are tasteful; the upholstery is good though slippery—we would suggest seat belts for performance and handling enthusiasts.

Though our test cars were prototypes, we were able, later, to inspect a number of production models; we can report that quality is much improved. /MT

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Taking Care of Your BRAKES

by John Booth

WHAT CAN I DO to my brakes to make them more efficient and safer? This is an oft-asked question. There are a number of preventive and maintenance hints you can apply to your car, but the first thing to do is to gain a thorough understanding of braking characteristics. The second thing is then to adopt a "do-it-yourself" program.

MOTOR TREND considers the stopping potential of a car among its most important functions. In our tests we decelerate from 60 mph at the rate of 15 feet per second per second to 20 mph, then rapidly accelerate to 60 mph. We repeat the procedure until one or more of the following symptoms becomes apparent: a definite pull to right or left; a noticeable increase in pedal travel; or an unusual amount of pedal pressure required to get the same stopping effect. These are all first indications of dangerous brake fade. If you become familiar with them, it will greatly reduce your chances of inadvertently over-heating the brakes.

BRAKE ADJUSTMENT (about 3/4-inch free travel) is a simple matter. It can be done in a very few minutes with a minimum of tools. Since most brakes are self-equalizing, a few turns of the adjustment ratchets is all that is necessary. A quick check of the hydraulic lines and brake cylinders for fluid leaks should be made at the same time. A leaking cylinder will be apparent by an accumulation of oil and dirt on the backing plate. It will have a medicinal odor. If detected, it should be attended to immediately or the brake lining will become saturated, producing erratic braking action.

As your car gets older, new lining will be needed. This is especially true of front brakes, which absorb 60 per cent of the braking action. The exact life of a set of shoes will depend to a great extent upon the driver. When proper adjustment is no longer possible or if a metal-to-metal scraping noise is detected, new lining is overdue! A good safety precaution is to visually check it every 10,000 miles.

WHEN REPLACING LINING, always check the drums for scoring or warping. Replace

shoes only in pairs. Another tip to good brake action is **not** to change lining brands unless it is done on all four brakes. Different makes have dissimilar coefficients of friction, which can only lead to erratic brake action.

Other do-it-yourself items should include an emergency brake adjustment as necessary, and a thorough check of the power brake unit (if so equipped). Contrary to popular belief, a power boost does **not** shorten the life of brake lining. It is true that certain drivers may have a tendency to stomp the pedal, resulting in an excessively severe stop. This is only a temporary condition that soon disappears with familiarity.

ANOTHER HIGHLY IMPORTANT and frequently overlooked item is tire condition. No matter how good the brakes are, the braking action must be transferred to the tires, which directly stop the car. Bald tires or tires with uneven treads due to the front-end being out of alignment will add many frightening feet to a panic stop. Poor shocks, loose shackles and bad front-end alignment add their portion of hair-raising feet by loss of tire friction.

In addition to this all-important maintenance, you may want to consider one or more of the many modifications that have been tried to improve brake operation.

THE USE OF HARDER LINING has shown positive results in increasing brake tolerance to heat and wear. In most cases, this harder lining resists changes in friction coefficient longer and is less subject to erratic action under severe heat conditions. Unfortunately, its use will necessitate harder pedal pressure due to surface density. A car equipped with power brakes would be particularly adaptable to this lining.

In some instances, complete brake assemblies have been substituted for larger units. While this is a possibility, the machine work, fitting, and hours of labor rarely make it worthwhile.

Still other attempts have been made to improve braking or safeguard against hydraulic power loss. One method consists of installing an extra master cylinder and

modifying the brake lines so that the front and rear brakes operate independently of each other. Should a line become ruptured, rendering one unit inoperative, the other system would still operate. This is a common set-up on many sports cars.

Another variation of the double-cylinder method has been to attach the second master cylinder to a slave cylinder, which in turn actuates the emergency brake throw arm during the last two inches of pedal travel. Either method obviously utilizes only one set of brakes.

ADDING A POWER ASSIST unit will not increase a brake system's resistance to its inherent shortcomings. It will, however, allow certain modifications to the brake pedal which can decrease reaction time between the eye and foot. The pedal itself can be lowered to make it nearer the accelerator level and a larger pad can be installed (on automatic shifts) for either right or left foot actuation.

The pros and cons of left foot brake action have been kicked around since the first automatic transmission made its appearance. Some feel that earlier conditioned reflex (right foot) will take over in an emergency. Others claim left foot application imposes undue strain on the driveshaft, transmission and differential.

A leading university conducted exhaustive tests on this subject and found 57 per cent of the drivers tested will revert back to their right foot in a panic situation. Reaction time was cut by 20 percent. Further tests indicated a 12 per cent increase in brake wear with negligible strain on the drive train. For the economy-minded, they also found that left foot braking results in a 15 per cent increase in fuel consumption.

No matter how many (or how few) of these suggested modifications you may adopt on your car, the most important thought we can leave with you is this: **Keep your brakes in top condition.** Use them within their limitations. And, check your stoplights. Remember—the driver behind you probably has no better brakes than you and needs every advantage you can give him. /MT

YOUR CAR INSURANCE-

Too Much or Too Little?

by John Behnke

ARE YOU THE TYPICAL JOHN Q. MOTORIST who will test drive and compare a car before buying it and then, without a moment's hesitation, sign up for insurance on the car without asking what protection you are getting, requesting a copy of the policy, or even asking the name of the company and agent?

After an accident, John Q. learns that he bought only collision, fire and theft coverage, as this was all the finance company required of him to protect their interest in the car, and John is left to pay the other fellow's loss personally. Other times the uninformed insurance buyer may relentlessly pursue a claim against an insurance company when there is no liability on their part whatsoever, thereby wasting the time of all concerned. On the other hand, he may completely disregard a legitimate claim that would be paid promptly.

Because an automobile insurance policy is a commercial contract and of a technical and legal nature, few policyholders read or understand the agreement. Casualty insurance, which includes automobile policies, is one of the least understood areas of insurance. However, automobile policies are basically simple if the two key parts of the policy are kept in mind: **protection and compensation.** The first part of the policy provides **protection** against the claims of those who have been injured or have had their property damaged by the policyholder, and the second section **compensates** the policyholder for his own losses, such as fire, theft and collision. **The first section, paragraph "A," protects against damage done by the automobile, paragraph "B," covers damage to the automobile.**

PARAGRAPH "A" PROTECTS YOU from claims of other persons because of injury to them by your automobile. This is by all odds the most important part of your policy and no driver should touch a steering wheel without it. In these days of exorbitant jury awards to injured motorists, especially in the larger cities, every driver should buy as much "A" coverage as possible, even if it means sacrificing collision, fire and theft or other property coverages. The old standard "Woolworth" limit of 5 and 10 (\$5000 limit for one per-

son's injuries or death, \$10,000 limit per accident regardless of number of people) no longer reflects reality, as most statutes permit at least \$25,000 maximum recovery per person in case of death. Permanent injury of a young wage earner with dependents could even shoot the latter amount up much higher. Even scratching a pedestrian's knee these days could cost you \$500 to \$1000. I know of cases in which pregnant women, witnesses to accidents, have collected sizeable sums from drivers for nothing but shock.

How much liability insurance is the right amount for you? This is an individual question, of course. A claimant, especially if represented by an attorney, may hold out for a fabulous figure when a prominent physician, executive, or someone apparently wealthy is involved. And juries are not above considering the defendant's net worth and playing Robin Hood.

The best way to be sure that the settlement goes no further than the upper limit of your policy is to carry a generous amount of liability insurance. What then is a generous amount? Although jury



verdicts in the lower six figures are not altogether uncommon (ranging from \$200,000 to \$300,000 in extraordinary cases), a general rule might be \$50,000 and \$100,000 for the average motorist. One hundred and \$200,000 would be safer, of course, and the extra premiums for these higher coverages are quite small. For instance, to double a 5/10 policy would cost only 20 per cent more, to hike it to 50/100,000 would be only 45 per cent more, and to

double that and have 100/200,000 liability limits, only an additional 50 per cent of your original premium or about \$25.

PARAGRAPH "B" PROTECTS against the claims of others because of your damage to their car rather than person. In different words, this second coverage is protection against property damage law suits. This type of liability is much more directly measurable in dollars, and can never exceed the value of the car; therefore it is much more limited than injuries covered under the first or "A" paragraph. But the same accident quite often involves both injuries and damages to other parties; therefore both types of protection are necessary. You also need this coverage to pay for damage in accidents involving only your own car, knocking down a stop sign or filling station pump, for example.

Both "A" and "B" paragraphs can be summed up as liability insurance because they are based on your legal liability to others. If you the motorist are not liable (which usually means that you are not negligent), there is no obligation to pay by you or your company.

So don't jump out of your car after the next accident and tell the other driver that your insurance company will pay for everything. They may not be legally obligated to pay him anything, regardless of what you say regarding liability. Merely because insurance is in the picture doesn't by that fact alone obligate either driver's company to pay anyone. In the common intersection accident involving contributory negligence, by way of example, both drivers may have to fix up their own cars unless they have collision.

All that your insurance carrier agrees to do is represent and defend you in case of your liability, either in court or by out of court settlement, paying not more than the maximum amount of the coverage provided by the policy regardless of the extent of your damages.

THE REMAINDER OF THE CLAUSES appearing after this point are designed to compensate for your own losses, physical and property, rather than those of others. The third paragraph, usually labeled "C," is the medical payment clause that re-

service

M

SECTION

imburses the driver and all of his passengers for medical and funeral expenses arising from an accident. In effect this is medical and hospitalization insurance and, because of its low cost, a good buy. From now on in the policy, the legal liability or fault of the insured driver is of no consideration when it comes to collecting; the company contracts to pay the insured and his passengers for their losses regardless of who was at fault, you, the driver, or the other motorist.

The thing to remember when a coverage question arises is the controlling phrase "in or upon, entering or alighting from" the automobile. In popular parlance these magical words mean that the driver or his passengers must be in some physical contact with the car to collect medical expenses. How about walking toward your car, preparatory to entering, and being struck by another vehicle? No, you are not "in or upon." How about stepping out of the car onto the pavement and then being struck? Yes. "Alighting from." Same for your passenger who falls out the door on a sharp curve. Also, the phrase "in, upon, etc." is broad enough to include any accident arising from the use of the car. Repairing a flat tire beside the car and being sideswiped, for instance. You are "upon" the car. Same when someone is struck while placing a tire in the trunk.

With some companies this paragraph is extensive enough to include being struck by another car without any contact with your own car. In this instance, it's known as extended medical pay.

The surprising thing about "medical pay" as it is called in the insurance industry is that it is payable in addition to money that may be collected from the other fellow's "A" and "B" (bodily injury and property damage) insurance. So if you the driver were at fault in an accident, your passenger, because of this contract, can recover from you or the other driver's "A" and your "C" coverage, thereby collecting twice for the misfortune.

PARAGRAPH "D" is just what it says—comprehensive—and it really covers the waterfront. The easiest way to sum it up would be to mention what it does not cover, that is, collision and upset damage. Comprehensive, then, covers almost any accidental damage (as opposed to depreciation) to your car except collision with another car or object.

No doubt the average driver buys it largely for protection against windshield breakage, although such common perils as fire and theft are included. This umbrella or blanket coverage has compensated for the oddest damage imaginable. I remember as an adjuster one policyholder who collected when a mechanic put acid instead of water in his windshield wiper wash tank and the acid sprayed the front and top of the car, ruining most of the finish. Another odd-ball accident involved a fan blade that

was twisted by a stick on the road. By consistent striking, the blade cut a gash in the radiator, allowing the water to escape and the engine to overheat. The upshot of it all was a burned-out engine.

Comprehensive has compensated for more damage by children and pets than any other type of insurance. I recall one claim which resulted from a child turning a spray gun on a car and ruining its finish with paint. More commonplace claims have arisen from damage to upholstery from ink, tears and cuts, and accidents peculiar to kids and pets.

THE LAST IMPORTANT COVERAGE is the well-known collision one, generally written on a \$25, \$50 or \$100 deductible basis which means you pay the first figure yourself and the company the remainder of the bill, if any. Although no specific limit is set on this coverage, there is one, just as in the previous paragraphs. The limit of collision recovery is the value of your car one minute before the accident. This means that your company is not going to pay more than the car's replacement value (regardless of how high the estimates of repair may be). Refusal to repair a car that is damaged beyond its market value is hard to explain to a motorist who is sentimental and attached to his car, or who just had an offer of more than the Book value. This is justifiable as your insurance company has a right to deduct depreciation.

You may be able to escape the ordinary depreciation deductions, however, if new parts have recently been added and you can prove it. Therefore if you can show a recent bill of sale for a new tire, most likely the company will skip the normal 10 per cent depreciation. If you haven't saved those receipts and bills of sale for recent repairs and parts, get a statement to that effect from the garage.

MINOR COVERAGE CLAUSES are obtainable from most companies beyond the above ones. For instance, emergency road service reimburses you for the cost of being towed to the nearest garage, or for roadside first-aid for your car, and for emergency deliveries of gas and oil. Probably the most recent policy innovation is the one that pays you for your own loss which is caused by another. In other words, it supplies "A" and "B" coverage for your own injuries and damages that are the fault of the other motorist. Collision coverage would do the same thing, but it would not pay the deductible or personal injury costs. Medical Pay ("C") would pay your medical expenses (usually up to only \$500), but not your property damage.

A GOOD TIME TO REVIEW AND REVISE your automobile insurance program is when a renewal notice is received and secondly when a new car is purchased. In either case, a basic buying principle of insurance should be kept in mind: **buy protection against large financial losses, not small ones.** Even though the latter occur much more frequently, they can be taken in stride. Insurance is, or should be, the substitution of a small certain loss (the premium) in exchange for the possibility of a large one that might be financially disastrous.

THE CLAIM SERVICE furnished by a company is another very important consideration when buying insurance. In general the larger companies with nationwide systems of adjusters authorized to settle claims and write checks on the spot can offer the fastest service. Many of the smaller companies are forced to employ an independent adjuster in the locality of the claim and may not allow him to settle without authorization of the home office. Even if they do allow the independent adjusters to settle their claims, they may write the checks at the home office.

Automobile insurance should be purchased like your car or any other commodity which means shopping around, comparing rates, and coverages. /MT

CORRECT WARM-UP

UNNECESSARY RACING OF COLD ENGINES

should always be avoided to allow proper circulation of lubricants. According to engineers of the Champion Spark Plug Company, this is especially important on engines equipped with hydraulic valve lifters. If the lifters are partially empty, for example, when the engine is started, running at high rpm immediately could conceivably force the plungers into a cocked position in the lifter bodies.

Some authorities also recommend that a new or rebuilt engine be cranked for a minute or two with the spark plugs removed prior to actual starting. This permits the oil pump to fully fill the lifters and the various lubrication passages, thus avoiding excessive engine wear during the first dry start.

Questions from readers

Q. WHAT'S MY SPEED? I have a hot rod with 30-inch-diameter tires and a 3.1 to 1 rear end ratio. What is my speed at 5000 rpm and at 6000 rpm? Phil Rustine, Bryan, Tex.

A. It figures out 150 mph at 5000 rpm and 180 mph at 6000 rpm. You will have some tire slippage. Anyway, if you hit 6000 you are sure up among the top performers with that ratio.

Q. DISPLACEMENT. I am building up an engine having a bore of 3¼ inches and a stroke of 3½ inches. What will the cubic displacement be? George Katz, Washington, D.C.

A. You forgot to tell us how many cylinders your engine has. Assuming it has eight, your cubic inch displacement is 230. This is figured from the formula: .7854 x piston diameter squared x stroke x number of cylinders.

Q. TAIL LIGHT LENSES. I am unable to locate tail light lenses for a classic. At the present time I am using red cellophane over the light bulb. Have you any suggestions? Maynard Brown, Syracuse, N.Y.

A. Practically all tail light lenses in classics were made of glass. There is a solution, however. Go to your local parts supplier and inspect his stock of late model tail light lenses. Most of these are made of plastic and they can be cut to size, installed, and they look like original replacements.

Q. ELECTRIC BLOWERS. I understand it takes between 12 and 30 hp to operate a suitable supercharger on today's cars. In view of this, how is it possible to use an electric supercharger and have equal performance with an engine-driven one unless you use at least a 12-hp electric motor? R. G. Peters, Jr., Sparrows Point, Md.

A. Electric-driven superchargers are not practical for an automobile except in the 0-30-mph range and even then their efficiency is very low due to electric power restrictions. If you want performance, better stick to one powered by the car's engine.

Q. OIL AND WATER. I have what I believe to be either a 1935 or 1936 Lincoln V-12. Every time I remove the radiator cap I notice oil and grease in the water. I also suspect that water is in the crankcase. What would cause this condition? George Trace, Sacramento, Calif.

A. The K model Lincoln was equipped with an oil cooler. If its radiator core goes bad, engine oil leaks into the cooling system. It is a simple matter, once you find the trouble, to have a defective core soldered or even replaced by a good radiator shop.

Q. PUSHBUTTON OVERDRIVE. I want to

on engines, performance,
new and used cars,
classics and customs . . .

install a pushbutton on the dash of my car to cut out the overdrive without pressing down on the accelerator. Can I do this? Herbert Millspaugh, San Francisco, Calif.

A. Yes. Newhouse Automotive Industries, 5805 E. Beverly Blvd., Los Angeles 22, Calif., stocks this item complete with installation diagram. You can also disengage the overdrive unit by flicking the ignition switch rapidly from ON to OFF, back to ON.

Q. REPAIRING MOTOMETER. I recently acquired a Motometer for my 1928 Locomobile. The red fluid in the unit always shows 212° even when the car is cold. Can these be repaired? Robert Ingraham, Denver, Colo.

A. This condition results when a Motometer is stored in an upside-down position for many years. Your first step is to place it in the freezer compartment of your refrigerator. In many cases, this cures the defect. If freezing does not work, remove the Motometer from its cap and gently tap the base of it to force the fluid down. If this doesn't work, you will have to locate another glass tube which is filled with fluid. Repairs to the tube itself are unsatisfactory, because they are sealed units.

Q. SUPERCHARGED CORVETTE? Has the Corvette ever been produced with a factory-installed supercharger? Would a supercharged four-barrel Corvette out-drag a '57 Golden Hawk in a ¼-mile? How about a '57 283-hp stick shift Chev against a '57 Buick Century? Leonard Timm, Great Lakes, Ill.

A. No supercharged production Corvette has been built yet. The Corvette and 283-hp Chevy should be top dogs on a ¼-mile strip.

Q. RE-UPHOLSTERING. I am restoring a '33 Packard phaeton. I wish to have it re-upholstered in genuine leather. Out here upholstery comes high, and the lowest quoted price is \$1400. What should a good upholstery job cost? Guy Fischer, Pittsburgh, Pa.

A. We don't know about prices in the East, but in Los Angeles a similar job was recently completed for \$900. It was perfect in every detail. Another shop did a similar car for \$375. It was a good job, but there were a few minor defects. With upholstery, as with painting, you get what you pay for. We think the \$900 price was slightly high and the \$375 price quite low.

Q. OLDS OR CHRYSLER? What engine and transmission would you suggest for a '48 Ford club coupe—Olds or Chrysler? Mike Boswell, Austin, Tex.

A. We would prefer the Chrysler if we were

after cubic inches. However, ease of installation would dictate the Olds, complete with three-speed box.

Q. LEAKY WATER PUMP. My 1929 Packard leaks water from the water pump. I have repacked it many times but the leak comes in again in about 50 miles. Also, I have had trouble keeping fan blades on this car. For an unknown reason, I have broken two in the past 500 miles. John Mullins, Grand Rapids, Mich.

A. When packing does not cure a water pump leak, it is a sure bet that the water pump shaft is scored. If a shaft is sufficiently worn, it won't run true, which sets up a vibration which in turn causes fan blades to go a-sailing. If you can't find a replacement water pump shaft, take the pump apart and any good machine shop will have little difficulty in making a new one.

For the benefit of other owners of Packards of this era, fan belt tension is adjusted by loosening the four nuts that hold the water pump in place. The entire water pump body is then rotated, which increases or decreases belt tension. To avoid subsequent leakage, it is best to drain the water from the block before adjusting fan belt tension.

Q. WANDERING CADILLAC. I have a '54 Cadillac which wanders, wallows and yaws on rough roads. I have installed new shocks, had the front end rebuilt and all wheels balanced. How can I stiffen the car up? How about air lifts? Capt. R. C. Branton, Moody AFB, Ga.

A. Try heavy duty shocks and/or air lifts. They will help, but you will never get sports car stability with this car.

Q. IN PRICE ONLY. Your reference to the Wills-Sainte Claire as a non-classic is truly disturbing. In 1925 and 1926 these cars brought as much as \$4285. With a price like this, certainly the car was intended for the luxury market. How can it be considered non-classic? Nathan Cragar, Minneapolis, Minn.

A. In 1925 and 1926 we had an inflationary trend similar to the one we have today. Compared to 1931 and 1932, prices then were extremely high. The Wills was and is a good automobile, but was never accepted by the monied citizens as a prestige car. There is no question that it was an imitation of the famous Hispano-Suiza, both in design and appearance, right down to the radiator ornament. The cars were dependable and fast, but being imitations they did not catch on then—nor have they caught on yet.

It takes the thinking of a majority of people to classify a machine as either a luxury or prestige-built car or a classic. The most that can be said for the Wills is that it was purchased by a few wealthy families who desired something different; the situation is akin to the family of today that purchases a sports car as a second family car.

It is impossible to answer any letters personally; we will answer the most interesting and most frequently asked questions in this column.



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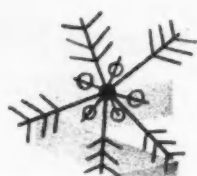
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TRENDS in New Products

NAMING your customized car is easy now that a new product called Chrome Names is available. These name plates are cast in one-piece script with capitals three inches high



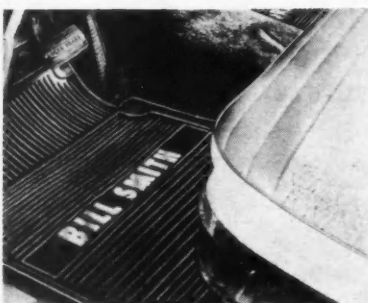
and lower case letters 1 3/4 inches high. You may have your choice of polished and lacquered bronze or chrome plate. The price is \$1.25 per letter or numeral. Plates are available by mail from Chrome Names, 426 W. 5th St., Kansas City, Mo.

WHISKING-OFF WHISKERS right in your car is possible when you have an ATR Shav-Pak, especially designed for operating standard AC electric shavers in automobiles. The



unit plugs into the cigarette lighter receptacle on the dash and is small enough to stow in the glove compartment when not in use. Complete information is available from the manufacturer, American Television and Radio Co., 300 E. Fourth St., St. Paul, Minn.

THE PERSONAL TOUCH can be added to your car interior with the Hocar Personalize-It-Yourself Auto Mat. When installing the mats, the characters necessary to form a name or initials are first traced on a tan colored rubber plaque from a stencil furnished as part of the kit. The letters are then cut out and permanently attached to a non-ribbed panel in the mat with a special rubber cement. There is space in the panel for up to 13 letters. The apron covering the toe boards when the mats are used in front is cut off when they are used in the rear. Mats are



available in black, blue, green, gray, red and white. They can be obtained from the Hocar Manufacturing Co., 2507 N. Clark St., Chicago 14.

LIVING LONGER can be a possibility if you own a Big Beam Car Flash, intended to help prevent accidents involving parked vehicles. It mounts securely on any flat, smooth surface with a suction cup and plugs into the car's cigarette lighter receptacle with a 10-foot cord. Flashing 72 times per minute, it will operate overnight without running down the battery. Plastic lenses are available in red, green, amber, blue or clear. The small size of



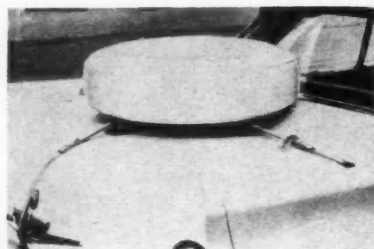
the unit makes it convenient to store in the glove compartment. It is available in six- and 12-volt models at automobile accessory stores, department stores and sports and hardware dealers. Retail price is \$2.99. It is manufactured by the U-C-Lite Manufacturing Co., 1050 W. Hubbard St., Chicago 22.

GLOVE COMPARTMENT FUMBLERS will be grateful to Santa if they receive a Visor-Kit—a complete storage unit to hold coins for parking or tolls, pen or pencil, cigarettes, sun glasses, maps, memo paper, matches or what-have-you. It hooks over the visor to



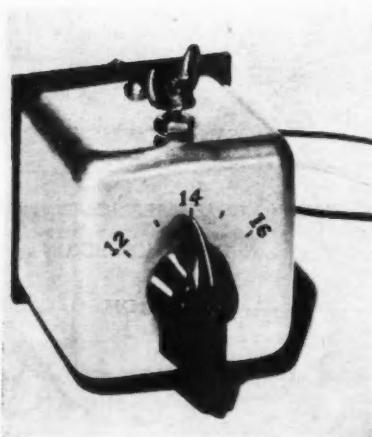
keep essentials within easy reach. The unit measures six by three inches and is made of gold-tone finish brass. Visor-Kit is available for \$1 from Crowley Enterprises, P.O. Box 7983, VK-W, Kansas City 29, Mo.

EXTRA ROOM in the trunk for that holiday trip may be obtained if you carry your spare on a new type Continental kit which is both easily installed or removed. An arrangement of suction cups, steel supports and web straps, this kit requires no drilling and won't damage automobile finishes. It fits any car, and doubles in brass as a top carrier for any-



thing from a pair of skis to a small boat. The outfit costs \$9.95, complete with a plastic tire cover from Continental Carrier Co., Inc., 32 N. 12th, Kansas City, Kan.

AUTOMATIC PROTECTION against battery overcharge and damage to generator, ignition points and other electrical equipment is the function of the Battery and Generator Sentinel. It does this by sounding a buzzer in the event of regulator malfunction. It also safeguards against battery discharge by sounding a buzzer warning signal when you open a car door with the headlights on and the en-

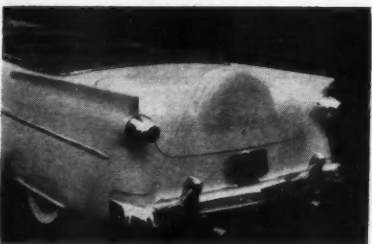


gine off. A third feature is a calibrated dial to check for sufficient generator output. The unit mounts under the dashboard and requires only three connections. The Industrial Computer Corp., 274 Lembeck Ave., Jersey City 5, N.J. will send you one postpaid for \$8.95.

PRE-MOLDED customizing kits including fins, air-scoops and Continental kits are now available to those who wish to restyle their cars. Each kit is designed to fit almost any

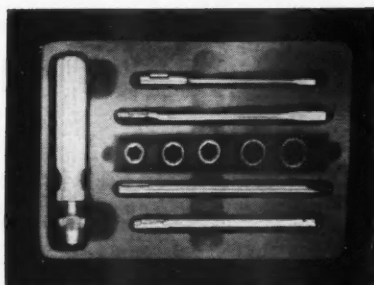


car. The fins are particularly adaptable to '52-'56 Fords and are available for both two-door and four-door models. Each kit consists of the pre-molded Fibreglas part, sheet-metal



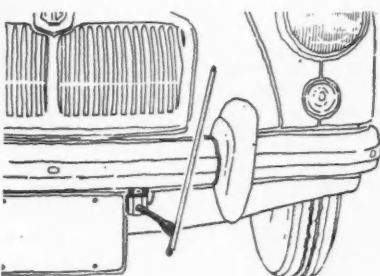
screws and epoxy solder. Complete information can be obtained regarding your particular installation from the Fibre Glass-Evercoat Co., 7220 Vine St., Cincinnati, Ohio.

GETTING CAUGHT in an emergency without tools to make a minor adjustment or simple repair can be disconcerting. Good insurance against this is a handy and compact tool set in a self-storing plastic case. The kit



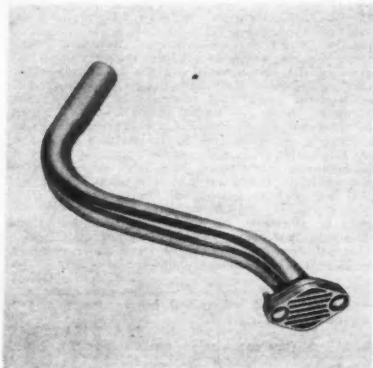
contains a variety of screw driver blades and sockets ranging from $\frac{1}{4}$ - to $\frac{7}{16}$ -inch size; the machined plastic handle is flameproof and shockproof. Packaged in an attractive Christmas-gift wrapper, the set costs \$2 postpaid and can be ordered from Terry Products, Box 581, Merrick, N.Y.

SOUND PROTECTION for parked cars is offered by a device called Sonic Shield. It is intended to help avoid repair bills resulting from bumper and grille damage occurring while your car is parked at the curb or in



a lot. A small wand carried in front of the bumper actuates the horn on your car and sounds a warning blast when a careless parker comes too close. Available from MG Mitten, 3044 N. San Gabriel Blvd., South San Gabriel, Calif., for \$14.95 each.

TOO NUMEROUS to mention here are the many custom pipes and exhaust accessories in



clock clicks off the seconds as each car is "driven" along the twisting roads, over the steep hills and around the high speed oval. Manufactured by the Milton Bradley Co., Springfield, Mass., the game costs \$4.

FISHPOLE-LENGTH ANTENNAS can be replaced by new 17-inch models, which, besides being short enough for low garages, are supposed to give more powerful reception. Available from Electrend Products Corp., St. Joseph, Mich., for between \$3.95 and \$14.95.

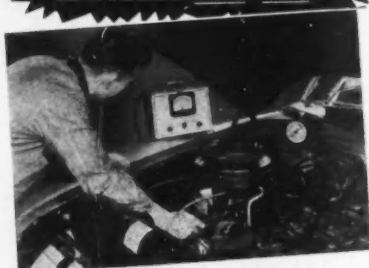


the Fenton line. A new brochure, however, illustrates the wide choice of chrome lakes plugs, outside tailpipes, truck tailpipe stacks and blocking plates, and also includes comprehensive installation instructions and drawings for each item. The brochure is available free on written request from Fenton Manufacturing, 3401 E. Pico Blvd., Los Angeles 23.

FUN FOR KIDS and grownups too is awaiting players of Test Driver, new automobile game played on a three-dimensional board, simulating Chrysler's proving ground, with scale models of Plymouth, Dodge, DeSoto and Chrysler cars. Magnetic action is used by each player to pilot his test car over the hazardous proving roads. An official timer-



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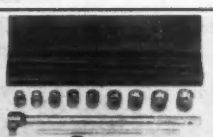
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LINCOLN

continued from page 33

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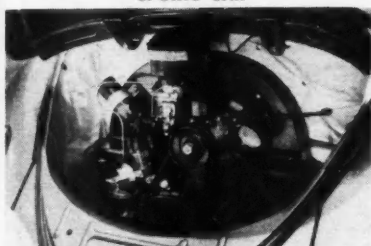
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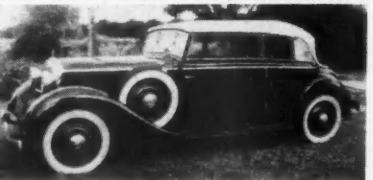
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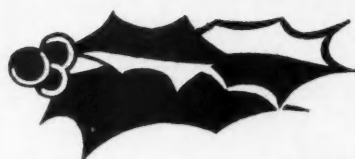
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3 MINERVA TIMERS—7 jewels, 1/100 second, 1 1/2-minute register. Never fully guaranteed by factory. \$25 each, all 3 for \$70. Chuck Jesse, 710 Washington, Miles City, Mont.

'29 PIERCE-ARROW brougham—classic, custom-built. Orig. owner; perf. mech. running cond. Two-tone French beige. Best offer over \$1000. H. H. Rogers, 115 Olympic Pl., Seattle 99, Wash.

GOODYEAR 6-ply Deluxe All-weather tires. 1 near-new 7.50 x 17 with tube, \$32.50. 2 near-new 7.00 x 17 & 1 good 7.50 x 17, all with tubes, \$22.50 each. George H. Shufelt Jr., E. 710 24th Ave., Spokane 35, Wash.

'55 PACKARD Caribbean. Specially built—one of its kind in the U.S. Wire wheels, Mallory ignition, new tires & top. Mint cond.; orig. cost over \$7300. Bill Hirsch, 777 High St., Newark, N.J. Phone Blgelow 3-7480.

SELL OR SWAP

'49 JEEPSTER. Stock engine, new front end, good body, top & curtains, re-upholstered. Yellow, with w.s. Sell or swap for foreign or small U.S. car. Leonard Martens, 914 E. Beloit, Salina, Kan.

'31 NASH 5-pass. brougham. Completely restored—7 coats of lacquer in orig. Hunter Green & black; hand-stripped. Actual mileage 30,000; 6 good tires. Holds 1st prize trophy. Sell for \$1500 or consider trade. Edward A. Porter, 2 Pearl St., Hudson Falls, N.Y.

'39 MERCEDES-BENZ 2-dr. rdstr. New tires, 4-speed trans., 3-band radio, heater. Exc. cond. Sell for best offer, or trade for late model damaged sports car. John A. Anderson, 1208 Central St., Stoughton, Mass.

'37 CORD Beverly sed., unblown. Exc. orig. body & uph. Factory engine trans.; new joints. Best offer over \$1250 or will trade for VW. S. Belhumeur, 725 W. Cecil St., Neenah, Wis.

'40 LINCOLN CONTINENTAL cabriolet in showroom cond. New black lacquer & white top; leather interior. '53 Cadillac 300-hp engine in exc. cond. \$2500 or swap for sports car. Will consider any offer. Charles O. Harkins, 74 S. 3rd St., Columbus 13, Ohio. Phone Capital 4-6167.

'36 CORD 810 sed., in good cond. New tires; less than 3000 mi. on engine since overhaul. Will trade for good MG-TC or later model. Robert M. Bassney, Box 334, Tioga, Pa. Phone 5-2151.

WANTED

AUTOMOBILE CATALOGS—pre-war, any make or model. Best premium prices on antique & classic literature. Also radiator emblems. Ask your price. Lewis A. Mayer, Munich, Mich.

CATALOGS & BROCHURES on all the classics. Paying top prices for Duesenberg, Auburn, Cord, Marmon, Cadillac, Packard, Kissel & others. Also Motor Annuals & Automobile Trade Journals. Sheldon J. Lewis, 61-33 213th St., Bayside, L.I., N.Y.

'35 FORD 4-dr. phaeton or '36 Ford 4-dr. conv. sed.—complete, in operating cond. A. S. Roberts, 113 Farmington Ave., Longmeadow, Mass. Phone Collect LO 7-5332.

STEARNS-KNIGHT PARTS. Will trade some vintage magazines, specs. & books for same—or what have you? J. W. Lacey, 209 E. 1st, Mitchell, S.D.

PORSCHE ENGINE—complete. State cond., displacement, price, etc. in 1st letter. Preferably within 500 mi. Carl Kihlstrom, 1237 Stony Point Rd., Grand Island, N.Y.

LINCOLN CONTINENTAL conv.—'41 thru '48. Body must be in good cond. Mrs. D. L. McKinney, Box 342, Cloquet, Minn.

ENAMEL LICENSE PLATES & others prior to 1925. Will pay up to \$10 each for nice tags—more for 1st issues. Linville Museum, Winterset, Iowa.

GAS CAP, HUBCAP, rear bumper hanger, side front bumper guard for '29 Buick sed. State parts & price. Bill Addison, 910 E. Jackson, Riverton, Wyo.

80 MOTOR TREND/DECEMBER 1957

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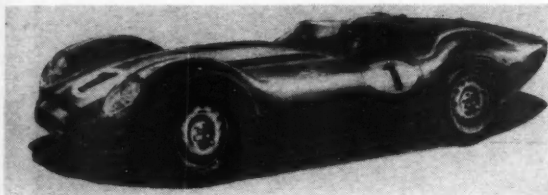
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AS WE GO TO PRESS

NEW LISTER-JAGUAR

Brian Lister has a new stormer ready for the 1958 sports car wars. Basic difference from highly successful '57 model is 10 per cent reduction in frontal area achieved by lower seating position and three-inch reduction in overall height. Tail running at same



level as windscreen increases aerodynamic efficiency and provides extra fuel space. Driven by Archie Scott-Brown, the 1957 version won 11 firsts in 14 starts, was second once and retired with mechanical trouble while in the lead in the other two.

DRIVING THE AMBASSADOR

After his first whirl in the new '58 Ambassador, Joe Wherry reports the following: "Scoots from 0 to 60 mph in 9.4 seconds and from 50 to 80 in 10.6. Anti-sway bar improves stability over '57 Rambler Rebel and Nash Ambassador. Only objection found in two-hour drive is that power steering is a little slow, having 4½ turns lock-to-lock." Test car was a Custom loaded with power equipment including air-conditioning. Engineering department claims this car should do about 16 mpg. Wherry also reports this is a good road car without bad high-speed habits.

VW ADDITION

Latest addition to the Volkswagen line is sporty Karmann-Ghia cabriolet.



First soft-top VW model, car in many respects resembles Porsche Speedster.

IMPORTED MOTOR CAR SHOW

The Shrine Exposition Hall in Los Angeles is to be the site of an "Imported Motor Car Show" to be held January 9-19, 1958. Produced by Ted Bentley, it is billed as "the first

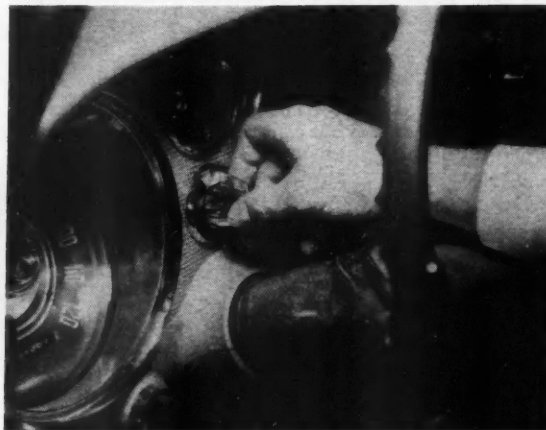
automobile show staged in America that will be devoted 100 per cent to the foreign car industry." Imports from England, France, Italy, Germany and Sweden are scheduled for display.

DRIVING '58 OLDS

Detroit Editor Joe Wherry drove an Olds mechanical prototype 98 just at presstime. Car was equipped with four-barrel carburetor developing 305 hp, had new closed-type air suspension. His report: "This combination of trailing arm rear suspension and air is on definite par with previous all-steel-sprung job. Believe Olds has one of best '58 air systems. Hard cornering produces moderate roll, less tire squeal than others. Power steering has good self-centering action. Lock is 4½ turns with power. Car weighs 4500 pounds, so expected it to nose-dive rather badly; it does not even on fast panic stops. Precise positioning of rear axle prevents wind-up; virtually eliminates rear-end squat on fast starts. Feel of car is taut, but ride is ultra-soft. No bottoming from stops. Car digs from zero to 60 mph in 9.4 seconds, from 50-80 in 9.6, from stop to true 80 in 16.1 with automatic transmission in D. Dash slot by windshield now closed. Horns honk by buttons on wheel spokes instead of horn ring. Big car feels much better; takes washboards smoothly; stays more level than its size would indicate."

AUTO-PILOT TESTED

In a 680-mile turnpike run from Detroit to New York, Chrysler has just demonstrated their Auto-Pilot automatic throttle control. (See page 22.) Imperials both with and without device were used. Cars with Auto-Pilot used 15 per cent less fuel than others. These cars were on



automatic control for 95 per cent of 13-hour run. Remaining five per cent was spent on semi-automatic. Drivers using device reported noticeable reduction in fatigue. Cost of unit will be about \$90.

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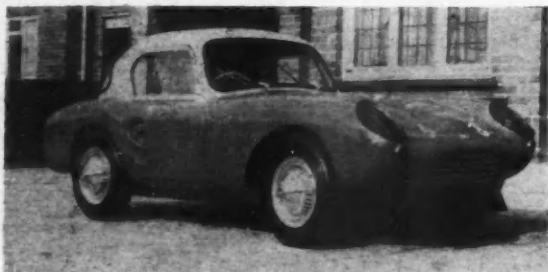
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HOW PRODUCTION FIGURES COMPARE

Through Sept. '57, total car production was down by 70,647 units as compared to same period for 1956 models. However, ups and downs of individual makes indicate some startling facts concerning their popularity with buying public. For instance, '57 Ford production skyrocketed up by 205,162 units over '56, while Chevy dropped by 64,870. Ford tops Chevy by 121,368 units per '57 production, which of course is always geared to actual car sales. Buick was ahead of Plymouth in '56 by 45,172 units; yet, in '57 Plymouth jumped 146,235 units ahead of Buick. All this just goes to prove that you can really never predict just what is going to happen in the new car market, nor can you forecast the whims and tastes of the American public.

NEW BERKELEYS

The Berkeley now appears in several new forms, including a fixed-head coupe. Both coupe and open two-seater are available in standard or deluxe versions. (Deluxe coupe is shown in photo.) There is also a choice of



engines for all models. Two-cylinder, 328cc, air-cooled Excelsior twin is supplemented by three-cylinder, 492cc engine which develops 28-30 bhp at 5500 rpm. New engine is fed by three Amal carburetors.

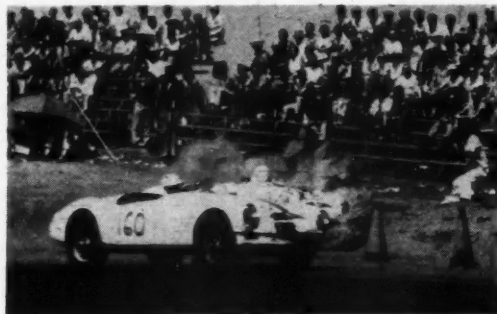
ANOTHER NEW BRITISHER

The Meadows Friskysport will soon be available in Great Britain. Car is powered by Villiers 325cc, two-stroke engine. Passenger space will accommo-



date two adults and a child. Top speed is 60 mph and factory claims 60 mpg at economical cruising speed. Plastic body is by Michelotti. Car is companion to gull-wing Frisky coupe.

A ROLL BAR



WOULD HAVE

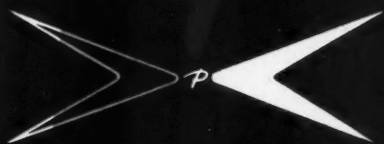


PREVENTED THIS

PHOTOS BY KEN PARKER



BEST REASON in the world for using roll bars is shown in these photos of a tragic accident at the Riverside, Calif. Raceway on September 22. John Lawrence of Pasadena in an MG-A (160) was leading Bob Schulman in a similar car when both slid into the bank in a turn. Schulman's car did not overturn, but Lawrence rode up on the bank and his car landed on its back. He died of head injuries a few hours later. Unfortunate occurrences such as this do much to discredit racing. In a large part they could be prevented if sponsoring organizations would require roll bars on all competing cars, including the production classes.



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